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Archives of Dermatology and Syphilology

VOLUME 22 SEPTEMBER, 1930 NUMBER 3

THE DIAGNOSIS OF SPOROTRICHOSIS *

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The term sporotrichosis is used to designate a parasitic disease due to an infection by a species of *Rhinocladium,* and usually characterized by the presence of various-sized subcutaneous nodes and nodules with an associated lymphangitis. These nodular formations undergo various degrees of structural change. Some soften, enlarge and involve the overlying skin in an ulcerative process, while others undergo spontaneous healing.

Since the year 1898, when Schenck first described his case and the casual organism was classified as *Sporotrichum,* the literature has gradually grown, as to both the number of cases and the variety of related organisms of the same species which have shown themselves possessed of pathogenic qualities. Today sporotrichosis ranks as one of the more important, as well as one of the more frequent, of the major dermatomycoses. This right to importance is augmented by the close resemblance between sporotrichosis and syphilis and tuberculosis, both clinically and anatomicopathologically. The prognosis, too, should act as a stimulus for exact differential diagnosis, because in the first, under skilful handling the outlook is excellent; while in the other two, in equally well established cases, in spite of all that the art and science of medicine can command, the end-result is usually unsatisfactory.

CLINICAL FORMS OF SPOROTRICHOSIS

In its clinical manifestations, this disease presents a polymorphism which is striking. The most frequent clinical forms are: (1) localized, (2) disseminated, (3) hematogenous and (4) ulcerating type of mucous membranes.

The Localized, Lymphatic Form, with (1) Sporotrichotic Chancre and (2) Lymphangitis.—In this form there is usually a history of an

* Submitted for publication, Dec. 10, 1929.

* From the Department of Dermatology, Northwestern University Medical School, service of Dr. Arthur W. Stillians.

injury followed by the development of a localized ulceration—sporotrichotic chancre. Later the regional lymph channels are involved in such a manner as to produce a chronic lymphangitis with definite nodulations. These nodules may ulcerate or be reabsorbed (figs. 1 and 2).

The Disseminated and Generalized Forms: (1) the Disseminated Gummatous Type, and (2) the Disseminated Ulcerative Type.—This

Fig. 1.—Sporotrichotic chancre.

Fig. 2.—Sporotrichotic lymphangitis with nodulations.

is the most frequent form seen clinically and resembles syphilis closely. The point of primary infection is seldom demonstrable. The history of injury, a slow healing wound or a recurring swelling or tenderness, especially of an extremity, may be vaguely remembered, followed by an incubation period of variable length. The appearance of the disseminated gummas or ulcer may, however, be one's first intimation that an

infective process has been under way. The evolution of the individual lesions may be the same as in the preceding form, but these nodules are usually more indolent, requiring from four to six weeks for full development. After softening, they may ulcerate and discharge a viscid liquid, eventually becoming purulent. This is the ulcerative form. They may, however, after softening be reabsorbed without involvement of the skin, thus forming the gummatous type (fig. 3).

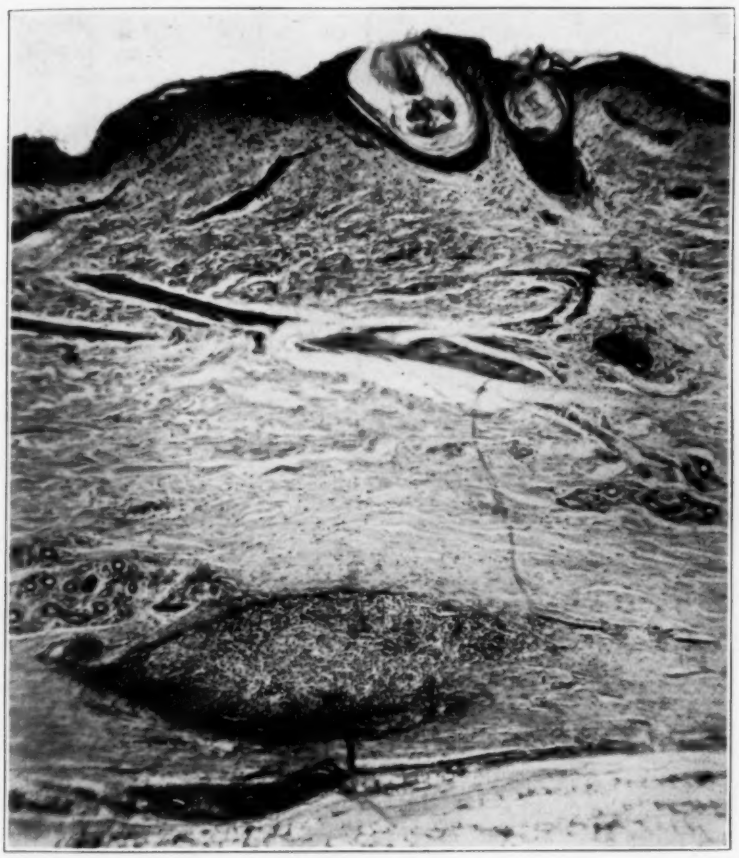

Fig. 3.—Deep sporotrichotic nodule with beginning gummatous degeneration.

The Hematogenous Form.—In this type there is involvement of bone, synovial membrane, testicle, etc. The most characteristic and frequent lesion is that of the bone. Beginning as an osteitis, the evolution is fairly constant. The inflammatory process is followed by abscess formation and later by sinuses. There is always an associated involvement of the skin of an inflammatory nature.

The Ulcerating Type of Mucous Membranes.—This type is found chiefly in the mouth, pharynx, larynx and trachea. Darier said, "On the mucous membranes the Sporotrichotic ulcers are remarkable by their relief, their dirty grayish yellow color, the absence of a false membrane on their surfaces, their tendency to spread rather than to destroy or mutilate."

ETIOLOGY

The causative organism of sporotrichosis in man belongs to the general order of *Hyphomycetes* and to the suborder *Rhinocladium*,

Fig. 4.—Fresh drop of pus from a punctured nodule, showing a marked number of organisms present, their variation in size, their tendency to grouping and the presence of internal spores.

according to Matruchot and Raymond. There are eight known pathogenic members of this order, of which seven are rare and the eighth, *Rhinocladium beurmanni*, is universal in its distribution and the one the most frequently found in lesions in man. This organism exists in two easily recognizable forms—the yeastlike form found in the lesions and the mycelial form found outside the body. The statement is made in most sources of information on the diagnosis of sporotrichosis that

demonstration of the organism in the pus is a most difficult feat, owing to the fact that they are seldom there. One of the chief reasons for offering this article is to affirm my belief, which is supported by experience, that one of the most reliable and rapid methods for the specific diagnosis of this condition is the isolation of the organism from the pus. Figure 4 shows a fresh drop of pus thinly spread under a cover glass. As the full grown yeast forms are about the size of red blood corpuscles and the smallest ones are bacterial in size and shape, with the intermediate forms having the appearance of nuclear debris, there may be,

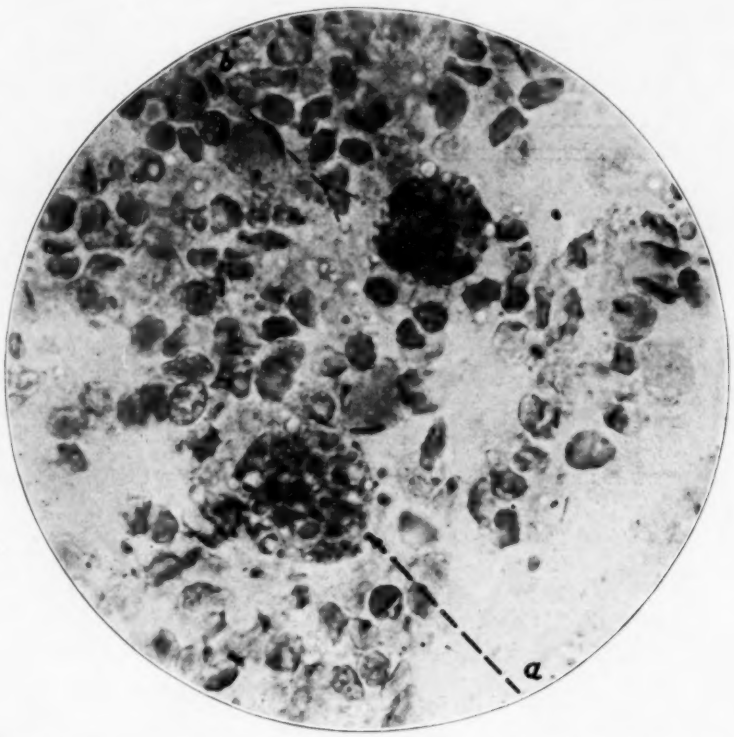

Fig. 5.—Phagocytosis: (*a*) phagocyte filled with ingested organisms; (*b*) free organisms.

on first glance, some confusion, but this is dissipated if the tendency to familial grouping is noted—evidenced by the marked progressive variation in size; in the larger or more mature forms careful observation reveals an internal sporelike body, which is translucent in appearance, and which is in constant motion; and in many of the pus cells are phagocytosed forms (fig. 5). If to a second drop of pus a drop of Unna-Pappenheim's methyl-green pyronin stain is added, the forms shown in figure 6*C* are brought out. These are mature forms. They

are the size of red blood corpuscles and show by the process of differential staining the dual nature of the internal constituents, also the mode of evolution of the new organisms which take the place of those destroyed by the immune bodies formed or through the process of phagocytosis. If there is a paucity of the suspected organism in the cover glass preparation, add a drop of maltose or dextrose solution to the drop of pus. Make a hanging drop preparation. Keep the preparation at room temperature for several hours. There will be a marked increase in the number of organisms. The further developmental processes may take one of two forms. In the upper pole, which in the stained preparations is green, a small ringlike body is formed. From this differentiating zone, a small bud is formed. As this process develops, a portion of this green-staining material advances and fills it. Breaking off from the mother spore, it continues to develop and repeat the same evolutionary processes (fig. 6*C*). The second method of reproduction is best seen in the unstained preparations. The mature spore contains several various-sized bodies. One of these is apparently forced to the outer wall and gradually extruded without the prior formation of an enveloping membrane. This new organism, at first of bacterial proportions, gradually develops and takes on all the attributes of the described forms and at maturity repeats the process of reproduction. The exact reason for this dual phase of reproduction is not definite, but I believe the former to be the anlage of the mycelial forms and the latter to be that of the yeastlike forms, or, in other words, one for an aerobic and the other for an anaerobic existence. Figure 6*A* shows the life cycle of a spore outside the body.

HISTOPATHOLOGY

The histopathology of sporotrichosis is not specific, but is highly suggestive. On microscopic section, at first glance, the disease can be classified with the infective granulomas. For the minute study, a nodule from the localized lymphatic form was selected. A biopsy was made so as to include both the nodule and a portion of the associated lymph strand, which was easily palpable (figs. 8 and 9).

Epidermis.—The process at the site from which the biopsy was made was not of the ulcerative type; therefore the epidermis was normal in appearance.

Dermis.—The pars papillaris showed no evident signs of involvement, except marked cellular infiltration in the lymphatic structures immediately surrounding the sweat coil and duct. The same was true for the hair follicles. In the pars reticularis, the maximum involvement was to be found. In the upper portion there were numerous various-sized islands of dense cellular infiltrate, also many cords of a similar nature. Below this was a denser, continuous infiltrate. At one end of the section there was a large cellular nodule, and leading from this a cord of infiltrate, more pronounced on the borders than in the center. This led to another

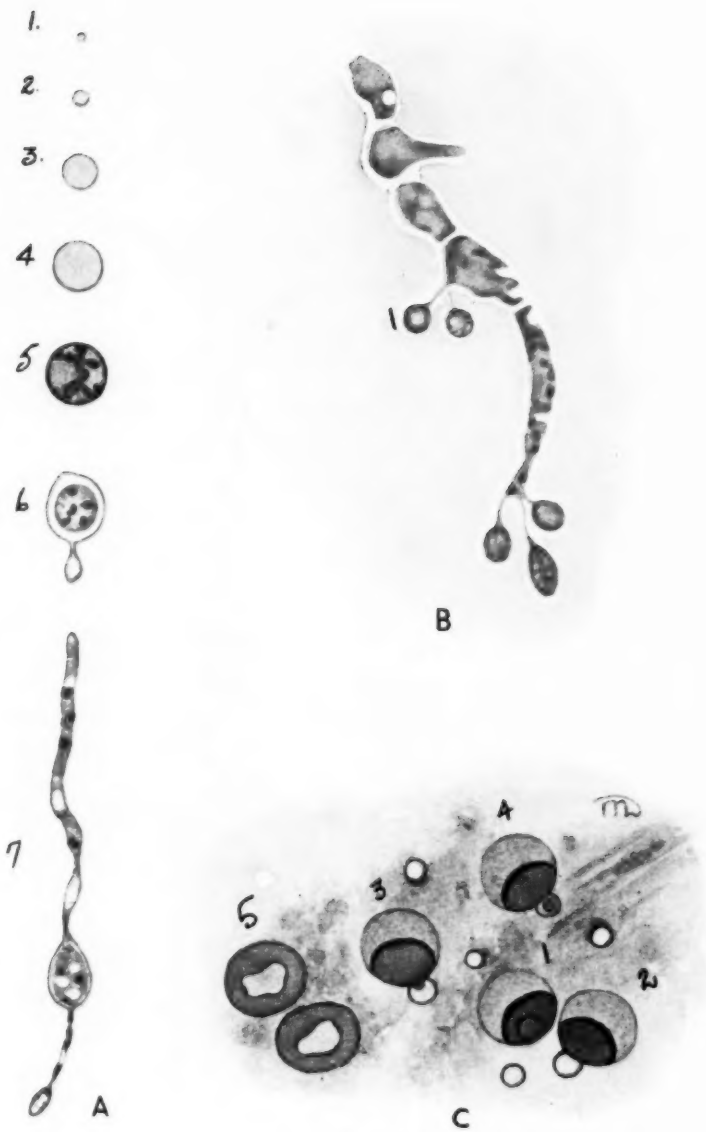

Fig. 6.—Developmental forms: *A*, evolution of a yeast form into a mycelial structure. This is outside the body. For the intermediate stages between forms 5 and 7 see Lawless: Ein experimenteller Beitrag zur Pathologie der Sporotrichose, Sonderabdruck aus der dermatologischen Zeitrschrift, vol. 40.

B. Older aerial form, with (1) conidiospores, which are highly infective.

C. Yeastlike forms found in the body. The forms 1, 2, 3 and 4 represent the life cycle. The figure 5, indicates erythrocytes for comparison as to size and form.

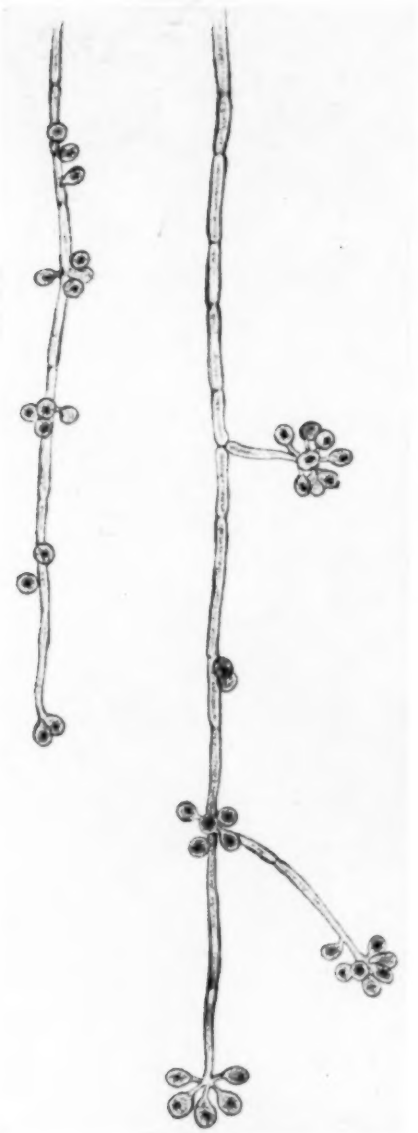

Fig. 7.—Actively growing aerial forms. This form stands between *A* and *B* of figure 6.

Fig. 8.—Microscopic section showing (1) sporotrichotic abscess and (2) infiltrated lymphatic strand connecting the abscess with sporotrichotic nodule (3).

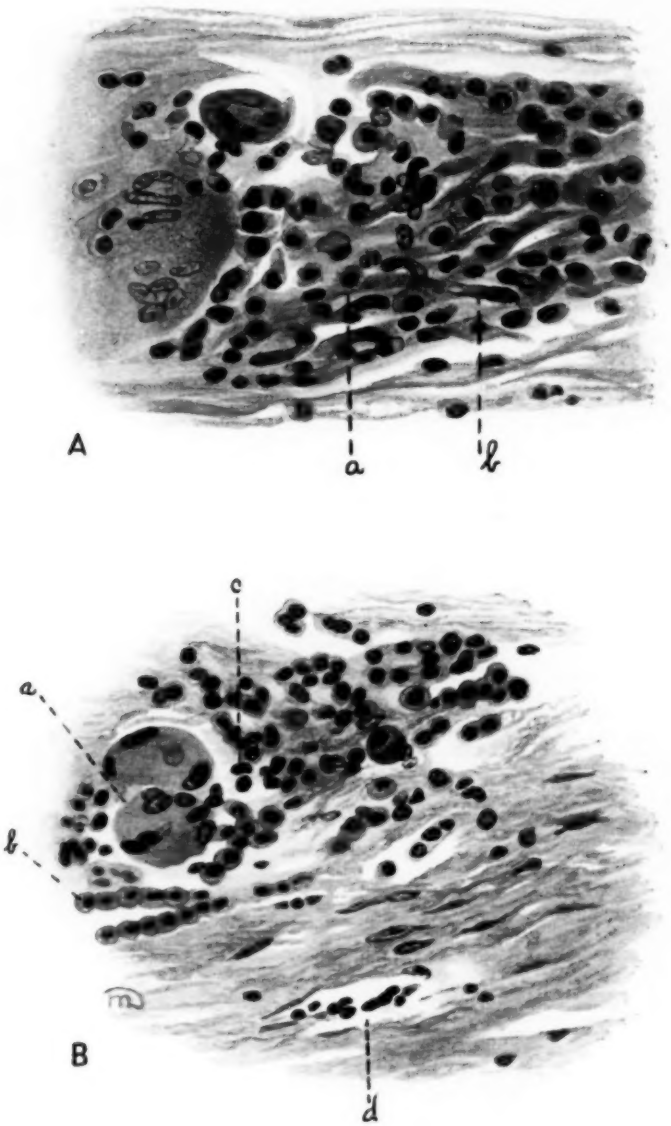

Fig. 9.—Cellular structure of a sporotrichotic nodule: *A*. Older nodule showing (*a*) numerous plasma and eosinophilic cells and (*b*) marked proliferation of fibroblasts.

B. Young nodule showing (*a*) giant cells, (*b*) chain of plasma cells, (*c*) polymorphonuclear cell and (*d*) lymph channel filled with lymphoid cells.

richly cellular nodule, the center of which was broken by typical abscess formation with cavitation. Below this formation were cellular groupings like those noted in the upper portion of the pars reticularis. All of these structures were confined to the lymphatic channels, with the exception of the abscessed portion, which had broken through the confines of this system.

On higher magnification, the following features were noted: The cellular infiltrate was composed principally of lymphoid and plasma cells, except, of course, the abscessed portions. They were, in most part, confined to the lymph channels, and in many instances long columns of cells in single file could be noted. The nests of cells were found in the dilated lymph spaces, and it was in these spaces that the majority of the giant cells were observed. They were numerous. Another interesting phenomenon also took place here. As the infiltrating cells entered these spaces, they followed the normal anatomic paths; therefore, I found them patterned in these spaces with the greatest number of cells in the outer zone. As the infiltrate became more pronounced, the nutrition of the endothelial and connective tissue cells was disturbed, and as a result there was a disintegration with the formation of giant cells and a picture suggesting a tuberculous condition; but the absence of definite caseation prevented such error in diagnosis. In the areas in which organisms were to be found, a sharp tissue reaction took place, and leukocytes and histiocytes in great numbers were seen. Just outside this freshly inflammatory zone was a combination of the old and the new; that is, a mixture of leukocytes, plasma and lymphoid cells. In other areas, in which healing was in progress, fibroblasts, Schaum cells, many new capillaries and here and there microscopic abscesses were seen. The latter structures were evidences of the continued presence of infective organisms and were the sources of reinfections. Throughout the entire picture, a marked increase of eosinophilic cells was noted.

The general effect on the vascular system presented nothing of specific nature. The organisms could readily be found in the abscessed portions, either free or phagocytosed. The general pathologic picture gave the impression that sporotrichosis in its incipiency is predominantly a lymph stream involvement.

SUMMARY

The clinical picture is suggestive; that is, the presence or history of an injury or ulceration followed by the occurrence of a regional lymphangitis with definite nodulations; or an eruption which is striking on account of its multiplicity and polymorphism, resembling both syphilis and tuberculosis in its entirety, yet in its finer detail giving one the impression that it is neither—an eruption that does not affect the general health of the patient in spite of the presence of ulcerations of formidable appearance. All of these characteristics are supportive in their diagnostic value, but to the laboratory alone is a positive diagnosis possible, by means of: (1) direct smears from the punctured nodules; (2) cultures on Sabouraud's mediums with special reference to the hanging drop method—one drop of sugar solution and one drop of pus; (3) the sero-agglutination and the complement-fixation reactions, and (4) the cutireaction and the intradermal reaction. For the third procedure, the steps are the same as those employed in the diagnosis of typhoid fever. For the emulsion, the spores only are used. The agglutination

takes place in from fifteen to sixty minutes, in dilutions of from 1:400 to 1:1,500, while those of other mycotic infections occur only in much weaker dilutions. The complement-fixation reaction follows the habitual technic, except the antigen, which is made from the spores and mycelia of *Sporotrichum*. The cutireaction and the intradermal reaction are made with sporotrichosine, which is produced by culturing *Rhinocladium* in liquid mediums. The technic is similar to that for the use of tuberculin. The results are not specific.

4201 South Parkway.

HODGKIN'S DISEASE OF THE SKIN

REPORT OF A CASE *

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NEW YORK

Eruptions of the skin occur at some time during the course of Hodgkin's disease in 25 per cent of the cases. In about 10 per cent, the cutaneous manifestations are the first symptom.

Cole [1] enumerates these dermatoses according to the frequence of their appearance as follows: "pruritus, prurigo-like eruptions, urticaria, edematous swellings, pigmentation, diffuse exfoliating erythrodermia, outbursts of perspiration, alopecia, dryness of the skin, hyperkeratosis, icterus, purpuric lesions and red or bluish tumors of the skin, which, on being opened, have a bloody, serous fluid and tissue typical of Hodgkin's disease."

Most of these lesions are of toxic origin, and their histology in no way aids in diagnosis. A few of them, however, show the typical microscopic picture of Hodgkin's disease. In 1920, Fox [2] reviewed the literature, and in reporting such a case accepted ten others as proved Hodgkin's disease of the skin. Miller,[3] in 1928, added ten cases reported in the more recent literature and reported two of his own. Since 1927, nine more cases have been reported in which the typical granuloma of Hodgkin's disease has occurred in the skin.

Most of these cases were characterized by tumor formation and, as Miller pointed out, many of them were simply extensions from adjacent glands or from deep subcutaneous lesions.

The case reported here has several points of interest: 1. The patient was a woman (75 per cent of Hodgkin's disease occurs in males). 2. The lesions of the skin were the first symptom, preceding fever and adenopathy by two months. 3. The eruption was symmetrical and erythematomacular, without scaling and without pruritus. 4. There

* Submitted for publication, Feb. 5, 1930.

* From the Department of Dermatology, Cornell University Medical College.

1. Cole, H. E.: The Cutaneous Manifestations of Hodgkin's Disease; Lymphogranulomatosis, J. A. M. A. **69**:341 (Aug. 4) 1917.

2. Fox, Howard: Lymphogranulomatosis of the Skin in Hodgkin's Disease, Arch. Dermat. & Syph. **2**:578 (Nov.) 1920.

3. Miller, H. E.: Lymphogranulomatosis Cutis, Arch. Dermat. & Syph. **17**: 156 (Feb.) 1928.

was no tumor formation. 5. The pathologic changes in the skin and those in the glands were identical, that is, a true Hodgkin's disease of the skin was present. 6. It is the first case reported in dermatologic literature in which avian tuberculin was used as an aid in the diagnosis of Hodgkin's disease.

REPORT OF CASE

History.—Mrs. G. H. C. was referred to me on April 3, 1929, because of an eruption of the skin. She had been born and had always lived in New York City, was 38 years old and of American ancestry. She had been married twenty years. One pregnancy terminated in miscarriage and another with the birth of a child that had lived only a few minutes. There were no living children. Her husband was alive and well.

Her family history was negative. As a child, she had had measles and scarlet fever without sequelae. During childhood, she had been rather fat but later had become thin. Her average adult weight had been about 115 pounds (52.1 Kg.). She had had no illness of importance since childhood.

In September, 1928, six months before her first visit, she noticed the skin eruption for which she was referred. Its development was gradual and without sensory disturbance. She did not think it had changed materially since October.

This eruption involved areas on both cheeks, the temples, parts of both ears and the postaural region. A similar condition was present over the upper sternal region. One area, the size of a lima bean, was present on the left cheek 1½ inches (4 cm.) to the left of the angle of the mouth. The eruption was a macular erythema of a bluish-red tint, occurring in diffuse, irregular patches which shaded off into the normal skin without a definite border. No edema was noted, and no elevation of the lesions, although the patient said that the spot on the left cheek seemed "lumpy" when it first appeared. Infiltration was probably present, but was so uniform that it was difficult to determine.

The patient's health remained normal after the appearance of this eruption until two months later (December, 1928) when she had a febrile attack lasting ten days and accompanied by cough and cervical adenopathy. This condition was diagnosed bronchitis. At the end of two weeks, the fever subsided, and the adenopathy diminished. Some loss of weight occurred during this illness and was not regained. However, when first seen, the patient considered herself well, aside from the condition of the skin.

Examination.—Examination showed a woman somewhat underweight (107 pounds) (48.5 Kg.) with the eruption previously described. The heart, lungs, liver, spleen and abdomen were apparently normal. There was a slight, dry cough which had persisted since the "bronchitis."

The cervical and axillary glands were moderately enlarged. The skin over the right sternocleidomastoid muscle was somewhat tense, and the patient said that her neck felt stiff when she turned her head. The inguinal glands were palpable, but not definitely enlarged. The adenopathy was only moderate and was fairly symmetrical. There was no single gland that attracted attention.

An examination of the blood made at the time of the febrile attack was reported as follows: hemoglobin 63 per cent, white blood cells 11,900, polymorphonuclears 62 per cent, eosinophils 1 per cent, no transitionals, no basophils, large lymphocytes 6 per cent, and small lymphocytes 31 per cent; anisocytosis was present.

A Wassermann test made on April 6 was reported negative. On the same day, a biopsy specimen was taken from the lesion on the right cheek, and a small gland

was removed from the left axilla for examination. The histologic examination of the lymph node, made by Dr. L'Esperance, showed "a granuloma more or less suggestive of Hodgkin's disease, with many large, clear endothelial cells and giant cells of the Dorothy Reed type. The section from the skin showed nodules in the subepidermal tissue of the same histologic character as that found in the lymph node. This strongly suggests the possibility that the lesion in the skin is also a Hodgkin's manifestation."

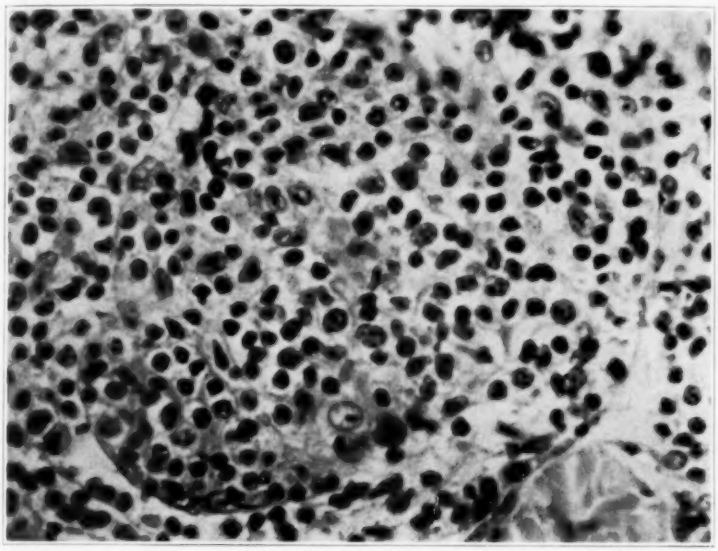

Fig. 1.—Section from an axillary gland (high power).

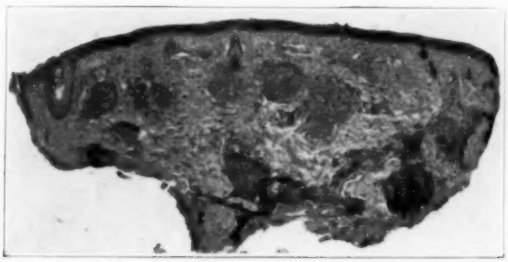

Fig. 2.—Section from the skin of the cheek (low power).

The results of a roentgen examination of the chest by Dr. J. R. Carty were reported as follows: "A film of the chest shows an asymmetrical thorax, smooth diaphragms, which are limited in motion, the right more than the left, and clear costophrenic angles. The lung fields show a definite infiltrative process at both bases. There is a marked bilateral increase of the lung root shadows. This probably represents enlarged nodes. There is also a widening of the supracardiac shadow. This also probably represents an enlargement of the lymph nodes. The posterior mediastinal space is cloudy. The apexes appear relatively clear. Impres-

sion: The observations suggest a parenchymal infiltrative process associated with a marked lymphadenopathy. The observations indicate a rather atypical condition. Hodgkin's disease seems the most likely diagnosis in view of the predominance of the lymphadenopathy."

A portion of the small gland removed from the axilla was ground, emulsified and injected into the wing vein of a chicken. The chicken was still alive nine months after inoculation.

On April 17, skin tests were done with human, bovine and avian tuberculin by Dr. L'Esperance. These tests were positive for human and avian, and negative for bovine, tuberculin.

On April 23, a blood count was reported as follows: hemoglobin 70 per cent, red blood cells 3,900,000, white blood cells 8,000, polymorphonuclears 65 per cent, small mononuclears 24 per cent, large mononuclears 10 per cent, eosinophils 1 per cent, some mast cells.

The patient was presented at the April meeting of the New York Dermatological Society, with microscopic slides demonstrating the pathologic condition. The diagnosis of Hodgkin's disease with Hodgkin's disease of the skin was accepted.

Between April 29 and May 21, the patient received filtered roentgen ray treatments to the cervical, axillary, inguinal and thoracic glands. (Factors: 3 mm. aluminum filter; 9½ inch spark gap; 5 ma.; distance 10 inches; time, five minutes to the superficial glands and seven and one-half minutes to the thoracic glands). Following these irradiations, the adenopathy subsided, and the cutaneous manifestations disappeared.

The patient was in excellent condition at the time of writing (January, 1930) and had gained 11 pounds (5 Kg.). There had been no recurrence of symptoms.

COMMENT

In its classic form, Hodgkin's disease is a clinical and pathologic entity. In a number of cases, however, in which the clinical picture suggests the diagnosis of Hodgkin's disease, the pathologic observations are inconclusive or favor a different diagnosis. The occurrence of these borderline cases, together with the uncertainty as to the causes, accounts for the different classifications that have been suggested for Hodgkin's disease.

Thus, it has been classed by different investigators as a systemic disease, a true neoplasm, a form of leukemia and an atypical tuberculosis, and has recently been included in a group of maladies ranging from leukemia to lymphosarcoma under the group name "lymphoblastoma."

Under this heading, Keim [4] and more recently McCafferty and Machacek [5] proposed to group leukemia, lymphosarcoma, granuloma fungoides, Hodgkin's disease, Sternberg's leukosarcoma and Kaposi's lymphoderma perniciosa.

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4. Keim, H. L.: Lymphoblastomas: Their Interrelationships, Arch. Dermat. & Syph. **19**:553 (April) 1929.

5. McCafferty, L. K., and Machacek, G. F.: Lymphoblastoma; a Report of Two Cases, to be published.

The authors mentioned agree that this new grouping is justified only by the absence of exact information as to the etiology of the diseases included in the group.

It seems probable that Hodgkin's disease should be removed from the lymphoblastoma group, for L'Esperance [6] has presented strong evidence of the discovery of the causative agent in at least certain cases of Hodgkin's disease.

L'Esperance [6] succeeded in recovering and identifying the avian type of the tubercle bacillus from four cases clinically and histologically typical examples of Hodgkin's disease. The bacillus was recovered twice from autopsy material and twice from glands surgically removed. L'Esperance also developed the avian tuberculin used to aid in the diagnosis of the case here reported and has obtained positive reactions of the skin to avian tuberculin in five of six cases of proved Hodgkin's disease.

The importance of the intradermal test with avian tuberculin as an aid to diagnosis in suspected cases of Hodgkin's disease should be emphasized and will be acknowledged when its specificity is fully appreciated.

Politzer [7] tested 100 cases of pulmonary tuberculosis with avian tuberculin without obtaining a positive reaction. Gasul [8] tested 110 children having pulmonary tuberculosis with avian tuberculin and failed to get a single positive reaction, even after repeating the tests. Löwenstein [9] tested seventy cases of skin tuberculosis of various types with negative results. Josef [10] reviewed the evidence and came to the conclusion that a positive reaction to avian tuberculin is a highly specific test for the presence of the avian tubercle bacillus in mammals. Löwenstein said that too few tests have been made on human beings to warrant a positive statement as to its specificity, but apparently he felt that the test is valuable, for he emphasized its importance in several reported cases.

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6. L'Esperance, E. S.: The Pathogenicity of the Avian Tubercle Bacillus, J. Immunol. **16**:1 (Jan.) 1929; Experimental Inoculation of Chickens with Hodgkin's Nodes, ibid. **16**:1 (Jan.) 1929; Study of a Case of Hodgkin's Disease in a Child, ibid. **18**:127 (Feb.) 1930; A Case of Pel-Ebstein's Syndrome of Tuberculous Origin, ibid. **18**:133 (Feb.) 1930.

7. Politzer, reported by Löwenstein (footnote 9).

8. Gasul, B. M.: The Avian, Human and Bovine Tuberculin Reactions in Children, Arch. Pediat. **46**:*2* (Feb.) 1929.

9. Löwenstein, E.: Das Krankheitsbild der Hühnertuberkulose beim Menschen, Ztschr. f. Tuberk. **41**:18, 1924.

10. Josef, reported by Löwenstein (footnote 9).

SUMMARY

A case of Hodgkin's disease with Hodgkin's disease of the skin is reported.

The present uncertainty as to the classification of Hodgkin's disease is mentioned. The suggestion that it be included in a group to be called "lymphoblastoma" is discussed.

Attention is called to the recovery of the avian tubercle bacillus from certain cases of Hodgkin's disease by L'Esperance. The value of intradermal tests with avian tuberculin in suspected cases of Hodgkin's disease as a diagnostic aid is pointed out. The probably specific character of the avian tuberculin test is indicated.

A STUDY OF FUNGUS-INFECTED NAILS*

ETHEL M. ROCKWOOD, M.D.
BOSTON

As many investigators have considered the thick, yellowish, opaque nail a constant source of mycotic infection, it seemed of interest to examine and make cultures of a series of such nails. The material for this study was obtained from the feet of patients in the diabetic clinic of Dr. E. P. Joslin.

Forty-four nails were studied, but fragments from only those found to be microscopically positive were planted. Extemporaneous preparations were made by heating the nail in 40 per cent potassium hydroxide in a water bath and removing the bits with a capillary pipet or by centrifugating and pipetting out the sediment.

Of the forty-four nails examined, twenty-eight, or 64 per cent, gave microscopically positive results. These were planted on Sabouraud's medium, fifteen plants being made for each nail. Before being planted, the large nail fragments were placed in 70 per cent alcohol for ten minutes, washed and cut into small bits under sterile water, removed and drained under sterile conditions. With this method the growth of *Staphylococcus aureus* and *albus* was very scanty.

The results are shown in the accompanying table.

No. Nails	Fungus	No. Times
6	Penicillium	16
7	Aspergillus	50
3	Yeasts	17 (1 red yeast)
2	An unidentified, tough, pale brown colony	2
1	Epidermophyton	4
1	Scopulariopsis	2
1	Acromoniella	2
1	Penicillium	(3 types)
1	Hard brown colony	1
1	Torula	1

One case showing *Cryptococcus* in all plants from the nail showed the same organism in all plants of scales from the interdigital spaces. Extemporaneous preparation of the same nail, however, showed actively growing mycelium with fruiting bodies, but no fungi were grown.

* Submitted for publication, March 12, 1930.

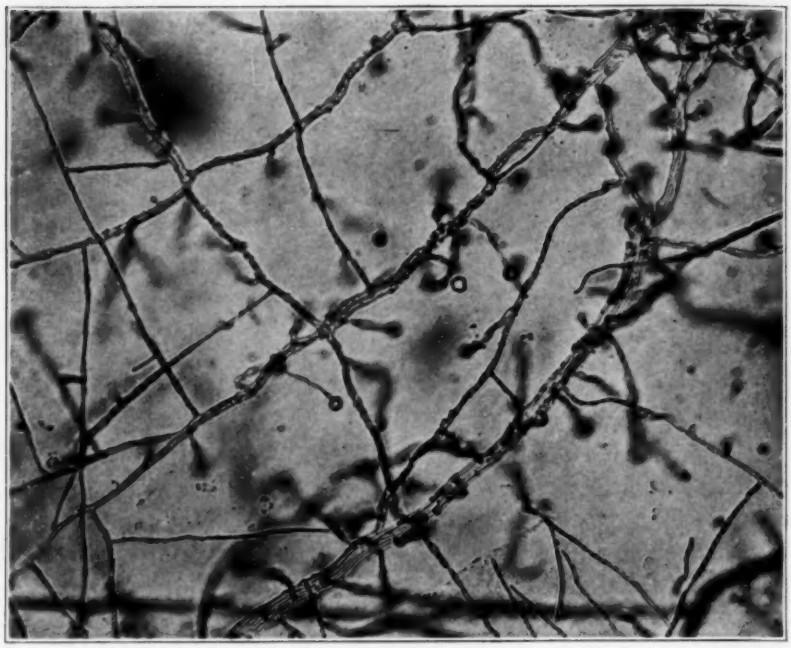

Fig. 1.—Acromoniella: With this in the same nail was found Staphylococcus aureus.

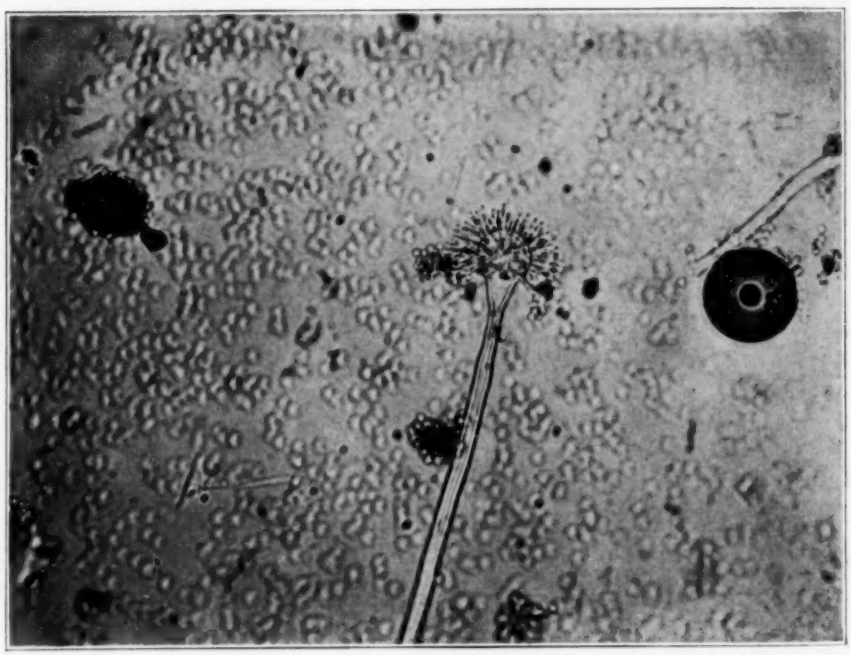

Fig. 2.—Aspergillus: This was found in pure culture.

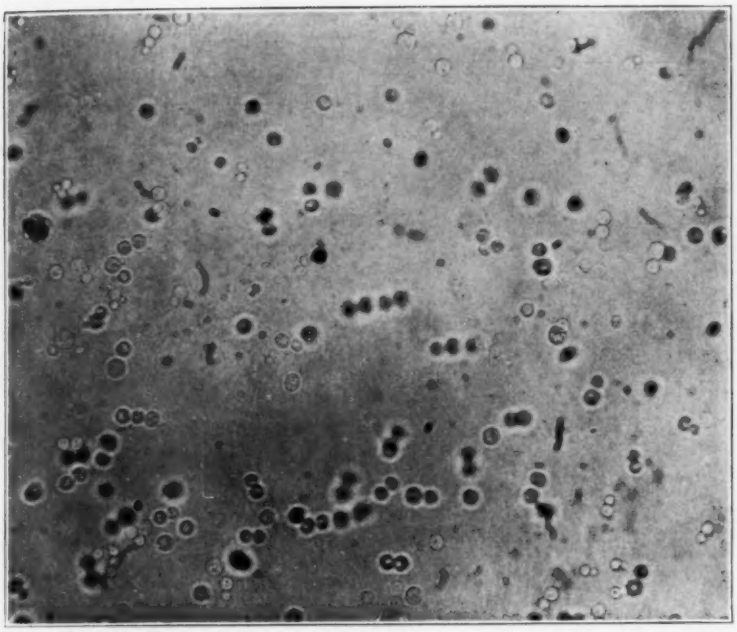

Fig. 3.—Cryptococcus: With this in the same nail were found an unidentified bacillus, Penicillium and Staphylococcus aureus and albus.

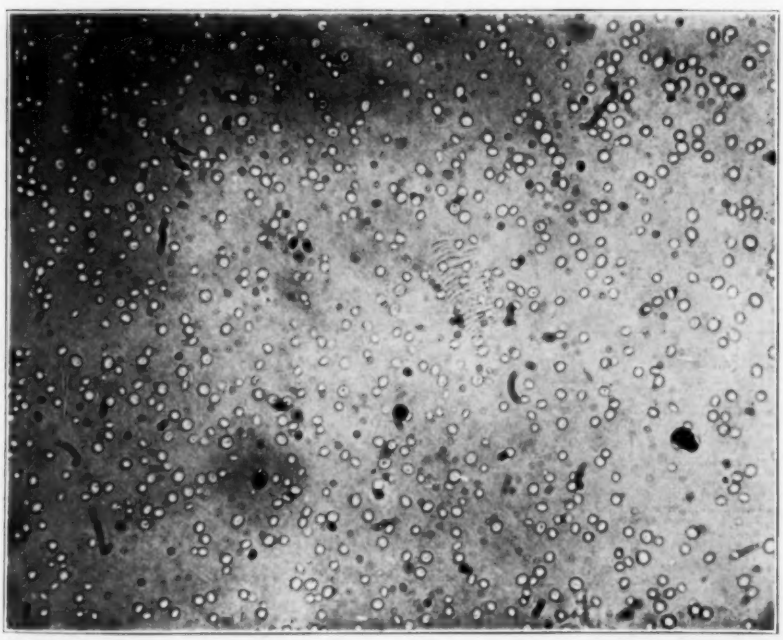

Fig. 4.—Cryptococcus (Saccharomyces): With this in the same nail were found Staphylococcus aureus and albus. Interdigital scales from the same patient gave the same organism as was found in the nails.

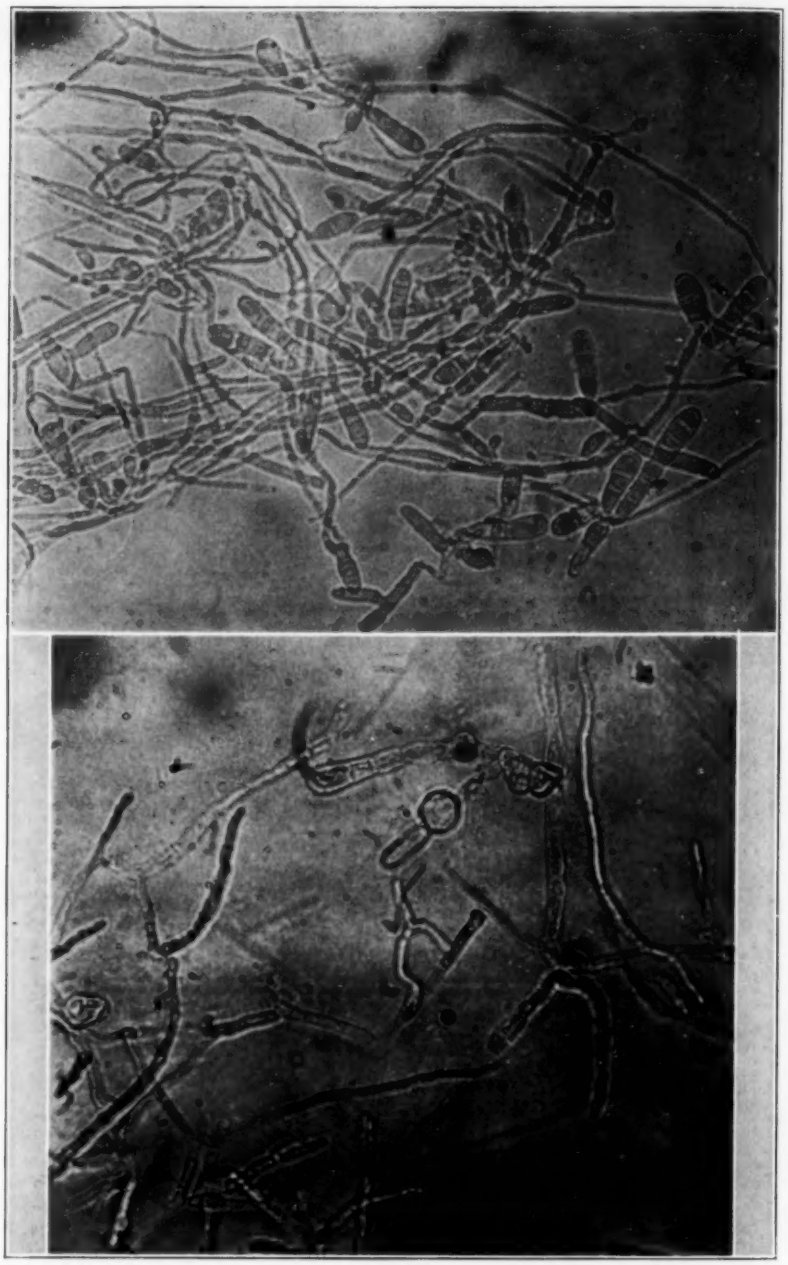

Fig. 5.—Epidermophyton: With this in the same nail were found Staphylococcus aureus and albus.

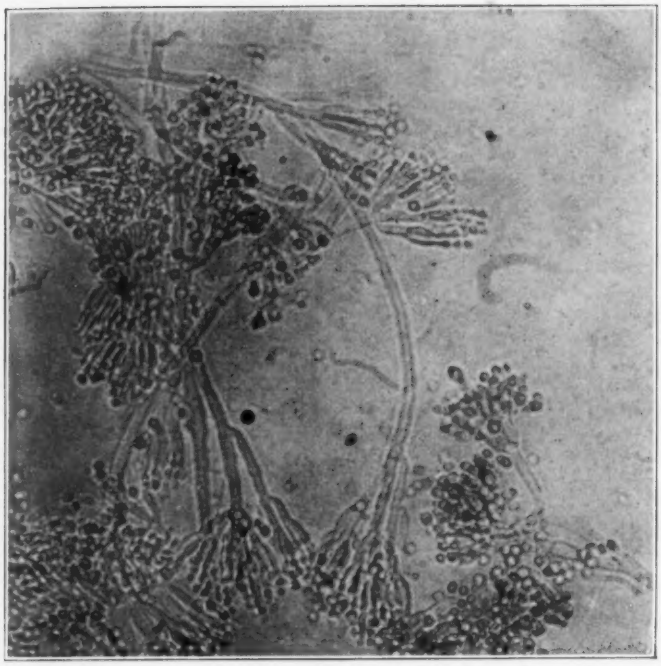

Fig. 6.—Penicillium: Three species were found in same nail with Torula, an unidentified mold and Staphylococcus aureus and albus.

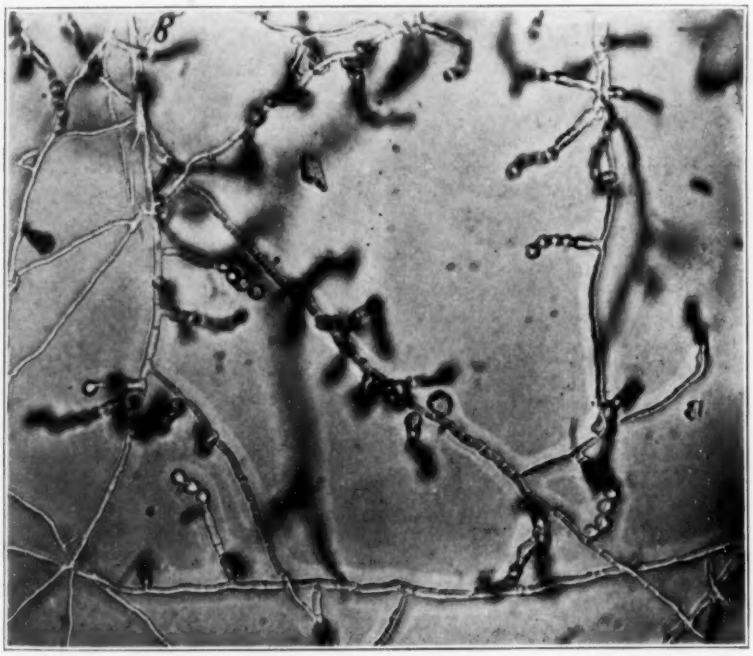

Fig. 7.—Scopulariopsis: With this in the same nail were found Staphylococcus aureus and albus.

Another nail showed *Aspergillus* in each of the fifteen plants. It seems hardly possible that this could have been a laboratory contamination, as the chief offender along this line was a velvety bluish-green penicillium not found in any of the material planted.

In nineteen patients who were examined for interdigital scaling and abnormal nails, eight showed no scaling although the nails were microscopically positive, i. e., 42 per cent of those showing nothing between the toes had definite fungous nails.

In eight cases both scales and nails were planted, and only one gave the same organism in both, namely, the yeast, as mentioned.

The accompanying photomicrographs are self-explanatory.

CONCLUSIONS

This series of over 400 cultures suggests the following conclusions:

1. The probability that all so-called fungous nails are due to a variety of fungi and not wholly to *Epidermophyton* or *Trichophyton interdigitale*.

2. The possibility that the nails may not be a source of *Epidermophyton* or *Trichophyton* infection, and that the interdigital infection may be due to other fungi.

PIEDRA *

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PARAMARIBO, DUTCH GUIANA, S. A.

Piedra is a mycosis of the hair which is observed in the tropics as well as in the temperate zone. It is caused by many different fungi. In Dutch Guiana,[1] I noted a mycosis of the scalp in which the hairs had many black, hard nodules of an irregular ovoid shape. In cases in which the hair was heavily infected it became faded and brittle.

Though interesting from a mycologic standpoint, the disease is of little importance from the standpoint of the patient. Still it is disagreeable for the sufferer, mostly because of the similarity of piedra to pediculosis capitis. Many patients are ignorant of having the nodosities in their hair; others accept the disease as a harmless but obstinate condition of the scalp, and only a few seek medical help because of esthetic reasons.

I saw piedra among physicians, as well as among the students, of the medical school at Paramaribo. Most of the patients were men. This fact is in accordance with the statements from Brazil and Paraguay and in contrast with those from Colombia and British Guiana. I found many more cases of piedra in Dutch Guiana than in Brazil. Da Fonseca and de Arêa Leão [2] lately reported that in Rio de Janeiro and some other towns of Brazil they were able to collect twenty-eight cases of piedra in six years, whereas I had at my disposal thirty cases in a few months, and about one year later I observed, without especially looking for them, thirty other cases. These cases occurred in creoles, European soldiers, Javanese, British Indians and Chinese, as well as in a few negroes in the towns. I did not see piedra on bush negroes, and I saw only one Indian with it.

Brazilian piedra and the piedra observed in Paraguay are similar to Surinam piedra in morphologic, as well as cultural, properties. The Brazilian piedra is caused by *Trichosporum hortai* (Brumpt, 1913).[3] In the dark colored piedra nodules observed in Brazil and Surinam, so-called cysts (Horta) are present; they are asci, containing eight fusi-

* Submitted for publication, April 1, 1930.

1. Aars, C. G.: Over het Voorkomen van Piedra in Suriname, Nederl. tijdschr. v. geneesk. **73**:3903 (Aug. 24) 1929.

2. Da Fonseca, O., and de Arêa Leão, A. E.: Sur les champignons de la piédra Brésilienne, Compt. rend. Soc. de biol. **100**:935, 1929.

3. Horta, P.: Sur une nouvelle forme de piédra, Mem. do Inst. Oswaldo Cruz **3**:86, 1911.

form bodies, ascospores. Delamare and Gatti [4] stated that in Paraguayan piedra the cysts contain from six to twelve fusiform bodies. On account of this difference from Brazilian piedra, the Paraguayans called their fungus *Trichosporum paraguayo*. It is not yet clear how the fungus of Surinam piedra shall be classified. In order to ascertain this, I sent samples of hair to the National Museum at Washington.

The fungus is not a true ectothrix. In many nodules, the fungus is seen growing under the cuticle of the hair. Delamare and Gatti [5] con-

Fig. 1.—Piedra; the black nodosities are just visible.

sidered *Tr. paraguayo* a neo-endothrix. Muniz and Valladares [6] (Brazil) also stated that the fungus penetrated the cortex of the hair. It is easy to understand that the damaged cuticle is the cause of the brittleness of the hair.

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4. Delamare, G., and Gatti, C.: L'évolution des kystes de la piédra Paraguayenne, Compt. rend. Acad. d. sc. **186**:1771 (June 18) 1928; cited, Trop. Dis. Bull. **26**:106 (Feb.) 1929.

5. Delamare, G., and Gatti, C.: Caractère néoendothrix de la piédra Paraguayenne, Compt. rend. Soc. de biol. **100**:122, 1929.

6. Muniz, G., and Valladares, P.: Piedra na Bahia, Rev. de med., São Paulo, 1907, no. 22; cited, Arch. f. Schiffs- u. Tropen. Hyg. **12**:604, 1908.

MICROSCOPIC EXAMINATIONS

Most of the nodules were examined in lactophenol of Amann [6a] or in potassium hydroxide.

In the mosaic work formed by the dense septated mycelium, light spots were easily seen. These represented the localization of the perithecia. Desenne also observed these light spots in Colombian piedra, though he did not give further particulars. It is rather unthinkable, however, that he should not have seen the asci or fusiform spores if they were present in Colombian piedra. In my cases, they were characteristic and common.

Fig. 2.—Diseased hair.

Dimensions of Nodosities in Piedra

Length in Microns	Number of Nodosities	Thickness in Microns, Minus Diameter of Hair	Number of Nodosities
30 to 100	7	0 to 50	23
100 to 200	7	50 to 100	39
200 to 300	9	100 to 150	6
300 to 400	8	More than 150	2
400 to 500	9		
500 to 600	2		
600 to 700	2		
700 to 800	2		
800 to 900	1		

The dimensions of the nodosities were as set forth in the accompanying table. The common length thus varied between 0 and 500 microns, with a thickness varying between 0 and 100 microns. When the

6a. The formula lactophenol of Amann (Amann, J.: Konservierungsflüssigkeiten und Einschlussmedien für Moose, Chloro- und Cyanophyceen, Ztschr. f. wissensch. Mikr. **13**:18, 1896) is as follows: Phenol crystalline pur., 1 part; lactic acid, 1 part; glycerin, 2 parts, and distilled water, 1 part. M.D., in vitrinigri.

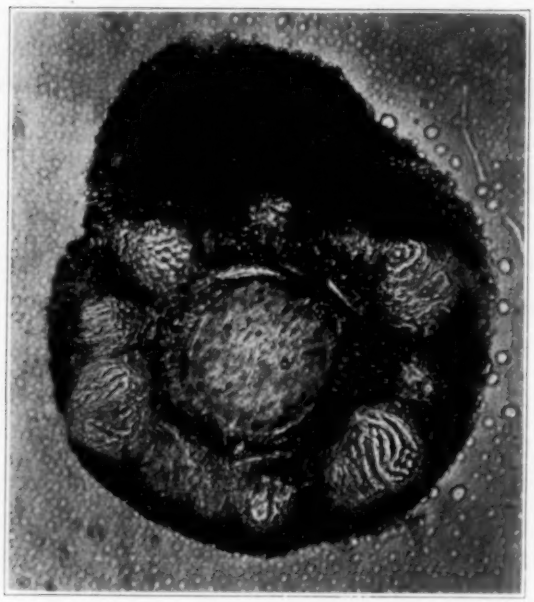

Fig. 3.—A transverse section of a piedra nodule. Note perithecia and typical structure of ascospores in asci (high power magnification).

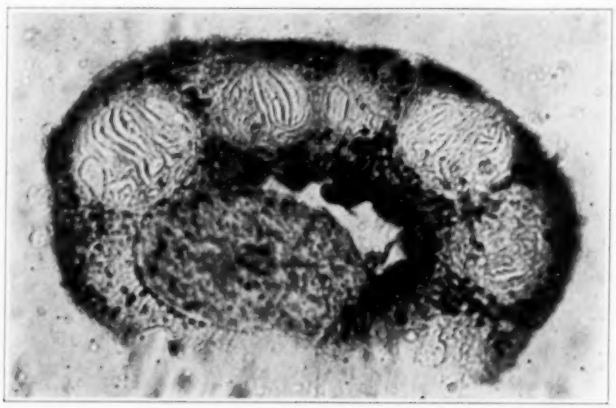

Fig. 4.—Another transverse section of a piedra nodule.

nodule encircled the hair, it was necessary to subtract the diameter of the hair. The cells of the mosaic work were rounded, ovoid or polygonal. Their largest diameter was from 4 to 6 microns.[1] Well developed asci had a length of from 32 to 44 microns and a width of 20 microns. Ascospores had a length of 42 microns and a width of 6 microns. They were furnished with two, seldom three, filiform ends.

The light spots in the surface of the nodules suggested the presence of orifices of perithecia. In order to ascertain this, paraffin sections were made. Because of the hardness of the nodules, cutting was difficult. Of many methods of fixation tried (Flemming, Helly, Carnoy, a diluted solution of formaldehyde, U. S. P. [1:10]) the method of Zenker

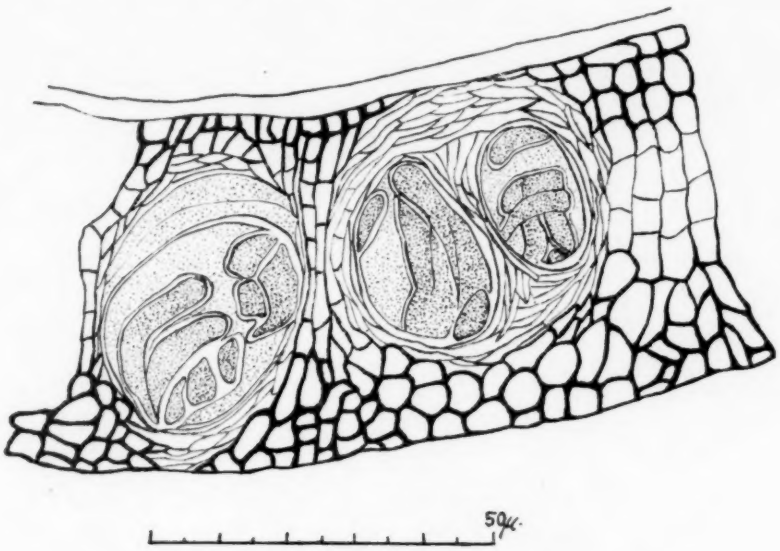

Fig. 5.—Perithecia containing asci (oil immersion lens).

modified by Helly [7] appeared to give the best results. The perithecia did not show pori in these cuts, nor did they show them in lactophenol preparations. I did not observe pyknidia. In the perithecia, ripe and unripe asci were met with. The inner wall of the perithecia was formed by one or more layers of narrow, probably stretched, hyaline cells. Around these cells one saw larger cells, fitted with thick, dark brown walls. The cells surrounding the hair immediately were generally larger than those at the periphery of the nodule.

Probably by bursting of the asci and perithecia, the fusiform spores were ejaculated into the environment. These ascospores were characteristic of Brazilian, Paraguayan and Surinam piedra.

7. Schmorl, G.: Die pathologisch-histologischen Untersuchungsmethoden, Leipzig, F. C. W. Vogel, 1928, p. 30.

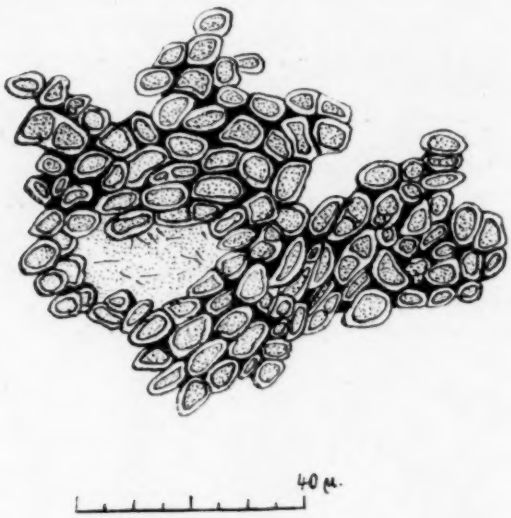

Fig. 6.—Light spot in the mosaic work of a piedra nodule, suggesting an orifice of a perithecium (high power magnification).

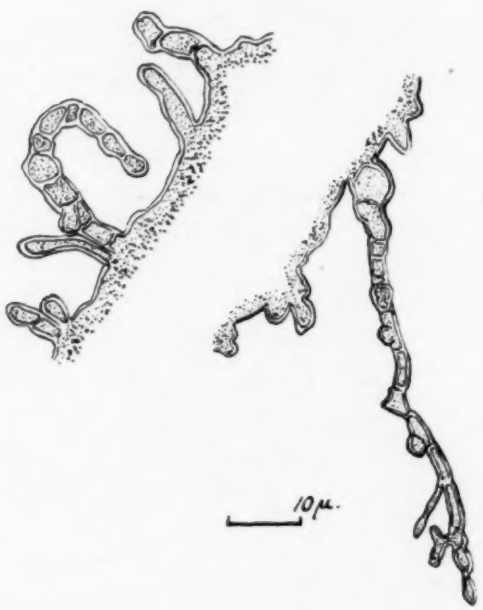

Fig. 7.—Spore-bearing hyphae in 1 month old hanging drop culture (high power magnification).

The disease showed many features in common with the nodular mycoses seen on leaves and other parts of plants. Still, I did not find true piedra on many of the plant samples studied.

CULTURE

The slight tendency to grow on artificial culture mediums and the presence of many secondary invaders on the outside of the nodules made it difficult to get pure cultures. The necessity of previous external cleaning with alcohol-ether diminished the feeble vitality still more. I obtained only the dark brown to black, hard and slightly downy cultures of the Rabello-Horta type. I never saw the other culture of the Juhel-Rénoy type, which was observed frequently in Brazil. Da Fonseca and de Arêa Leão [8] could isolate both types from the same case of piedra.

Maltose-agar and honey-agar proved to be the best culture mediums. I did not get results by adding horn powder to the aforementioned mediums, nor did I notice growth on the hair medium of Duffy.[9]

In hanging drop cultures (dextrose broth), the ascospores could be seen ejaculated out of the nodule. I did not see mycelium arising from the ascospores, whereas Horta observed a dense, segmented, fine-shaped mycelium growing out of the fusiform bodies. After some time, the cells at the periphery of the nodule looked swollen. Afterward spore-bearing hyphae with a diameter of from 4 to 5 microns appeared. In very old cultures dark ovoid cells could be seen at the free end of the mycelium. They had a diameter from two to two and a half times larger than that of the hyphae, and should probably be considered as chlamydospores.

MODE OF INFECTION AND THERAPY

Bathing in the water of large rivers is often suspected of being at least a contributing factor in the contraction of piedra.[10] In Surinam, there are many patients who believe that this is a mode of infection. I often searched for elements of the fungus in this water, but the results were negative. Neither could I obtain infection of sound hairs by exposing them for months to the incriminated water. Efforts to infect

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8. Da Fonseca, O., and de Arêa Leão, A. E.: On the Fungus of Brazilian Piedra, Mem. do Inst. Oswaldo Cruz (suppl.), 1928, no. 4 (Dec.), p. 126; footnote 2.

9. Duffy, F. M.: The Bacterial Etiology of Seborrhea, Arch. Dermat. & Syph. **20**:358 (Sept.) 1929.

10. Castellani, A., and Chalmers, A. J.: Manual of Tropical Medicine, London, Baillière, Tindall & Cox, 1919, p. 2101. Delamare, G., and Gatti, C.: Sur la piédra du Paraguay, Bull. Acad. de méd., Paris **99**:500 (May 8) 1928; cited, Trop. Dis. Bull. **25**:697 (Sept.) 1928.

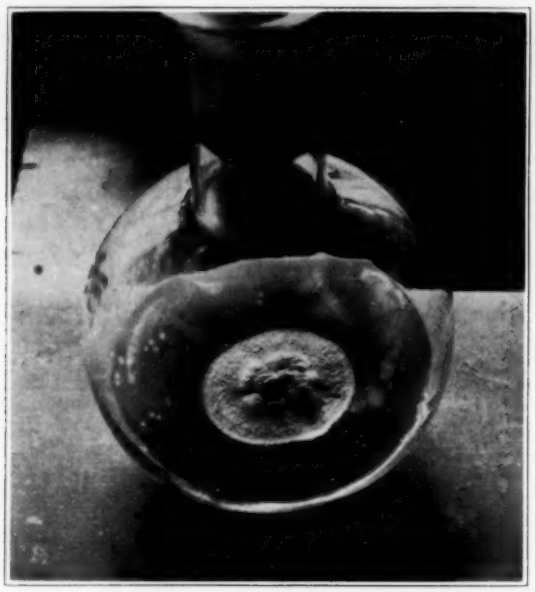

Fig. 8.—A two months' old culture of the piedra fungus on Sabouraud's maltose agar. Although of a deep black color during the first four to six weeks, the culture was covered gradually by a short-threaded, whitish down.

Fig. 9.—A five and a half months' culture on Sabouraud's peptone agar. Note the plicated margin.

hairs in vitro by placing sound and infected hairs together in watery contact in narrow glass tubes also failed.

The infectiousness of the fungus is certainly small, and regularly cleaned hairs never become infected. As the disease never involves the root of the hair, therapy is simple. In severe infections, it is advisable to cut off the hairs entirely; good results can also be obtained by applying macerating antiseptic lotions and by combing the hair regularly with a fine comb.

COMMENT

A description of piedra is given, based on sixty cases observed in Dutch Guiana. The condition is frequently met with in Paramaribo; it occurs in men more often than in women.

The fungus is not a true ectothrix; in many cases, the cuticle of the hair was seen to be damaged by the parasite.

In the dark nodules, perithecia are present, with asci containing eight fusiform spores. Probably, the perithecia are not provided with orifices. Pyknidia could not be observed. The ascospores consist of one cell and are provided with two (seldom three) filiform ends. Cultures of the type Rabello-Horta, never those of Juhel-Rénoy, were obtained.

In hanging drop cultures, the fusiform spores never give rise to mycelium. Very old cultures show chlamydospore formation.

Infection by bathing in river water could not be proved.

The disease involves only the shaft of the hair, not the root. The infectiousness of the fungus is slight. Therapy is simple.

Diseased hair was sent to the National Museum at Washington for further investigation.

CONCLUSIONS

Though the occurrence of piedra is common in Dutch Guiana, the condition is of little importance from the point of view of the patient.

The fungus probably belongs to the *Perisporiaceae*. There is a great resemblance of the condition in the cases observed to Brazilian and Paraguayan piedra.

TRICHOPHYTIN HYPERSENSITIVENESS DEMONSTRATED BY CONTACT TESTS

PRELIMINARY REPORT *

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AND
GEORGE M. LEWIS, M.D.
NEW YORK

There is no necessity for again emphasizing the frequent occurrence of tinea of the hands and feet. In the United States this infection seems to have become so widespread that a large percentage of the population may be said to be affected in one or more areas of the skin. It has been shown by authors who have studied this condition that the different types of lesions on the hands are very frequently free from typical fungi, while the organisms generally abound in the lesions on the feet, provided these have not been previously treated. This fact led Williams [1] first to voice the idea that the hand lesions might be "ids," i. e., dermatophytids, resulting from the dissemination of fungi or their products from foci on the feet. Since this theory was propounded, several investigators added to its plausibility by the discovery of new facts pointing in this direction. The work of Walthard,[2] Jadassohn [3] and Peck,[4] for instance, showed the following facts:

1. In the cases investigated, systematic cultures from the feet and hands were generally positive only from the feet.

2. The skin of patients with lesions of the feet and hands was practically always hypersensitive to intradermal injections of trichophytin. In other words, the allergy which is the sine qua non for the appearance of an "id" was here present.

3. The lesions on the hands generally appeared subsequent to those on the feet. In some cases, the eruption was caused to appear on the hands by irritation of the focus on the feet.

4. Peck was able to obtain a culture of a fungus from the blood of one of his patients.

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* Submitted for publication, March 11, 1930.

* From the Department of Dermatology and Syphilology, New York Post-Graduate Medical School.

1. Williams, C. M.: Diagnosis of Some Eruptions on Hands and Feet, Arch. Dermat. & Syph. **5**:161 (Feb.) 1922; Dermatophytid Complicating Dermatophytosis of Glabrous Skin, ibid. **13**:661 (May) 1926.

2. Walthard: Dermat. Ztschr. **53**:692, 1928.

3. Jadassohn, Werner: Arch. f. Dermat. u. Syph. **158**:16, 1929.

4. Peck: Klin. Wchnschr. **29**:1357 (July) 1929.

From all these points, it seems that the theory of the dermatophytid nature of many such lesions on the hands is fairly established. However, one link in the chain of evidence still seems to be missing. If the lesions on the hands, which are generally eczematous, are actually the results of the effect of fungous products on the susceptible skin, it should be possible to reproduce such lesions through the application of these products to the patient's skin. In other words, just as the skin of a patient which is hypersensitive to primrose reacts to the local application of a primrose leaf with the type of erythematous, vesicular lesion characteristic of the primary eruption, so the skin of these patients should react to the local application of trichophytin with a vesic-

Fig. 1.—Reaction to contact test on the forearm with trichophytin, forty-eight hours after application.

ular, erythematous or scaly eruption resembling the original "dyshidrotic" or eczematous eruption of the hands. In order to decide this point, we have undertaken a series of investigations, using the patch test impregnated with trichophytin. The series is as yet by no means complete, and while all the details and descriptions of observations will be left for a later report, we shall point out some of the preliminary results.

1. The skin of certain persons reacted to the application of trichophytin by means of the patch test with an eruption of an eczematous type. The histology of these lesions showed typical spongiosis and intra-epidermal vesicles.

2. We have so far found that the test was frequently positive in patients with tinea, or with a history of tinea, while patients without

clinical evidence of a fungus infection and without a history of such infection rarely gave a positive test.

3. Different parts of the body were tested, and in the same patient different areas often reacted differently. The hands were not found to be hypersensitive more frequently than other parts of the body. This is contrary to what one might have been led to expect from the predilection of the dermatophytids for localization on the hands.

4. The period of time elapsing between the removal of the patch test and the appearance of the eruption at the site was frequently of considerable length, being in some cases over fourteen days. The

Fig. 2.—Histologic picture of reaction to trichophytin contact test, showing intra-epidermal vesicle and inflammatory reaction.

duration of the reaction was sometimes several weeks, with partial remissions and exacerbations.

5. The reaction was often follicular, consisting of papules or minute vesicles at the follicular orifices (compare follicular trichophytids and tuberculids, lichen trichophyticus and lichen scrofulosorum).

We do not wish to comment on these results here, but we reserve our detailed report for a later date. However, the fact seems established that products of fungi are capable of causing an eczematous eruption in a hypersensitive skin. This seems important not only for the understanding of the pathogenesis of dermatophytids of the hands, but also because it demonstrates that the products of other microorganisms may be capable of producing eczematous eruptions in hyper-

sensitive persons, as may be the case in infectious eczematoid dermatitis and perhaps in other eruptions of unknown etiology. Just as an eruption of an eczematous type may be produced by primrose, quinine, dyes, etc., so it is here proved that substances emanating from living organisms may at times cause eruptions of like character.

200 West Fifty-Ninth Street.

CAVERNOUS HEMANGIOMA AND TRAUMA

REPORT OF A CASE*

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AND
G. KENNETH MALLORY, M.D.
BOSTON

The relation of trauma to neoplastic growth has always excited interest and is unquestionably of importance. Certain portions of the body are subject to trauma more than others, and tumors occurring in these areas are often considered to result from such injury. Common examples of such tumors are those arising from bone, carcinomas of the breast and angiomas of the scalp, face and extremities.

The degree of trauma and the length of time between it and the occurrence of the neoplasm vary greatly. Since the manner in which an injury may initiate true tumor growth is not understood, it is difficult to judge the significance of the trauma. It seems reasonable to suppose, however, that this significance may be greater when a fairly severe injury is followed within a short period of time by a neoplastic growth. This condition seems to be fulfilled by the case which we shall describe.

The major portion of the literature concerning tumors arising from blood and lymph vessels is confusing, because no uniform method of classification and nomenclature has been adopted. The whole group of tumors and anomalies of the blood vessels, either congenital or acquired, is classified under the general heading of angioma, at least by most clinicians and surgeons. While the majority of authors agree that a certain proportion of these tumors are true tumors or blastomas, frequently there is no attempt to make this distinction.

Reid,[1] in 1925, decided that the majority of angiomas fall into the class of abnormal arteriovenous communications. In this class he has listed arteriovenous aneurysms, racemose aneurysms, aneurysms by anastomosis, pulsating angiomas and, perhaps, simple angiomas. He felt that with the possible exception of simple angiomas, all these lesions arise from abnormal connections between the arterial and venous systems. These connections may be due to congenital weakness or to malformation of the vessel walls or to injury to normal vessels as a result of trauma. The cases reported by him do not, however, seem to have

* Submitted for publication, Feb. 28, 1930.

1. Reid, Mont R.: Studies on Abnormal Arteriovenous Communications, Acquired and Congenital, Arch. Surg. **10**:601 (March) 1925.

been studied carefully from a histologic standpoint. This histologic study we feel is often necessary to determine whether or not a tumor is a true tumor.

Adami [2] discussed thoroughly the differentiation between angiomas that are true tumors and those that are not. He expressed the belief that the majority of the angiomas are "spurious blastomas" whether formed of blood or lymph vessels, because they exhibit "no power of independent growth." Mere dilatation and filling of the vessel spaces is not growth even if preceded by aplasia and followed by atrophy of the tissue of the part. It is not usually in excess of the physiologic requirement.

He said that the following lesions apparently fall into this group of spurious blastomas:

(1) Obstructive telangiectases such as dilatation of the hemorrhoidal veins
(2) Arteriovenous aneurysms, circoid aneurysms
(3) Congenital telangiectases
    (*a*) Telangiectatic nevi
    (*b*) Cavernomas of the liver

In contrast to these he makes a second group which he calls "true typical blastomatous hemangiomas." In order to belong to this class, the tumor must show a progressive new development of blood vessels. There is no pronounced ectasis. The endothelium of the vessels is prominent and often two or more layers in thickness; the cells are relatively large, with much cytoplasm. One subdivision in this group is made, that of the angioma hypertrophicum. In this tumor the endothelial lining of the blood vessels is markedly hypertrophic and sometimes extends in papillary projections.

In view of these distinctions, the importance of a histologic examination can easily be seen. A more thorough but simple classification of the true blastomatous endothelial tumors seems to be to group all of them under the general heading of endothelioblastoma. This heading can be subdivided into three groups: (1) the hemangio-endothelioblastomas in which the endothelial lined cavities contain red blood cells, (2) the lymphendothelioblastomas in which they contain lymph and (3) an undifferentiated group in which the type cell is the endothelial cell but in which no differentiation into blood or lymph vessels has taken place. The hemangio-endothelioblastomas can be further subdivided into (*a*) a capillary type in which the vessels are small with lumens more or less uniform in size and shape, and (*b*) a cavernous type in which the lumens are large and irregular and vary greatly in size.

2. Adami, J. G.: Text Book of Pathology, ed. 2, Philadelphia, Lea & Febiger, 1910, p. 817.

A practical and simple combination of these various classifications to include both spurious and true tumors would be the following:

(1) Abnormalities of the arteriovenous system due either to abnormal communications or to obstruction lesions; these are not true tumors and show no independent growth
  (*a*) Obstructive telangiectases
  (*b*) Arteriovenous aneurysms, circoid aneurysms
  (*c*) Congenital telangiectases
    (1) Telangiectatic nevi
    (2) Cavernomas
(2) Endothelioblastomas
  (*a*) Hemangio-endothelioblastomas
    (1) Capillary
    (2) Cavernous
  (*b*) Lymphendothelioblastomas
  (*c*) Undifferentiated endothelioblastomas

Many cases of angiomas resulting from trauma are reported in the literature, but usually no attempt is made to differentiate between abnormal arteriovenous communications and true tumors.

Löwenthal,[3] in 1895, while discussing the relation of trauma to various types of neoplastic growth, mentioned ten cases of angiomas following trauma. Of these only two seem to belong to the group of true endothelioblastomas. The first is that of a child who, when 7 years old, was bitten on the hand by a dog. The lesion was accompanied by considerable hemorrhage. At the age of 14 years, the patient had a feeling of pressure over the injured area. At 25 years, a tumor was noticed between the forefinger and the middle finger. In the course of twenty years, the tumor spread from this point over the hand and forearm. The second case was that of a woman who when 19 years old struck her bare heel on a stone while carrying a heavy load on her back. At the age of 27 a tumor had formed which spread to the external malleolus and toward the toes. A good gross of microscopic description of the tumor is not given in either of these cases. The growth and manner of spread of the tumors, however, suggest that they were true endothelioblastomas.

In 1920, Biancani[4] reported a more or less similar case. The patient fell down, striking his forehead. The injury was followed by a swelling the size of a five cent piece. This for a time decreased in size, but then suddenly began to increase and grew to the size of a small nut, at which point it remained stationary for about fifteen years. An attempt was then made to remove it surgically. After removal, it

3. Löwenthal: Langenbeck's Arch. f. Chir. **49**:24, 1895.

4. Biancani, G.: Contributions to the Study of the Etiology of Tumors, Trauma and Angioma, Gazz. d. osp. **41**:419, 1920.

recurred and grew somewhat larger than before. On examination, it was bluish, nonpulsating and irreducible.

The description of the tumor and the fact that it recurred following removal suggest that it was a true tumor. However, without a histologic examination it is impossible to determine whether the lesion was not circoid aneurysm in which the injured blood vessel was not removed in the operation. As the tumor on each occasion grew to a definite

Fig. 1.—Distribution of lesions; the larger ones are on the forehead and above the eyebrows; the smaller ones can be seen around the ear and extending down the neck and shoulder.

size and then ceased to grow, it is probable that this is the true explanation. Furthermore, according to Adami, circoid aneurysms may recur if the cause, that is, the arteriovenous communication, is not removed.

REPORT OF CASE

History.—F. K., a white man, aged 35, was a World War veteran. The family history was insignificant and his past history revealed no previous skin lesions. While the patient was riding in a wagon during October, 1918, a shell exploded

nearby, killing the horses and rendering him unconscious. He regained consciousness at the Fifty-Second First Aid Station and found his neck, face and shoulders bandaged. When the dressings were removed, the left side of his face, neck and shoulder was covered with crusts and serous fluid. The abrasions healed readily, but the area on the shoulder always showed signs of injury. Since that time his neck and shoulder had felt stiff and occasionally were painful on motion.

About three months after the injury, the patient noticed a deep swelling on the left side of the neck. This swelling continued to increase in size. Gradually red

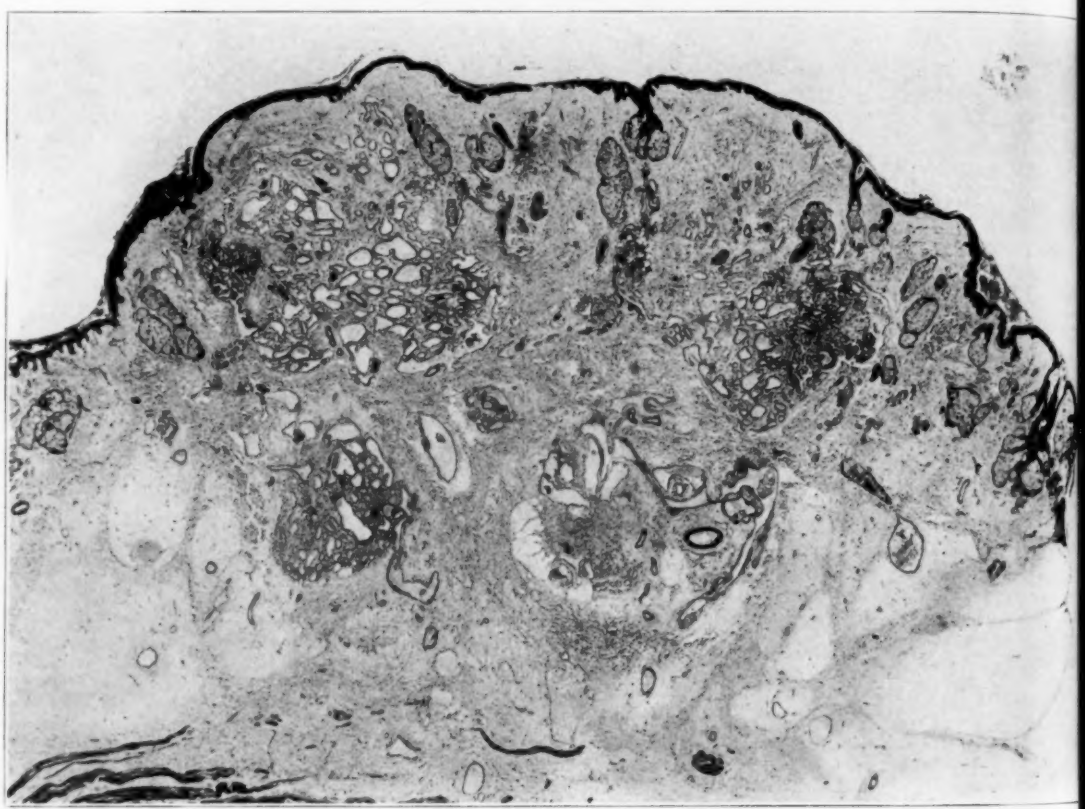

Fig. 2.—Low power cross-section of one of the lesions removed from the forehead. The upper portion shows epidermis and corium. In the lower left corner of the illustration a bit of the underlying striated muscle can be seen. Lying beneath the epidermis and extending into the fatty tissue of the corium in places as far as the musculature, the tumor can be seen composed of irregular, somewhat dilated blood-containing, endothelial-lined spaces; × 12.

and blue spots and nodular swellings began to appear all over the injured area. Those on the left side of the face and neck had recently been growing rapidly. Lately, on awakening, the left eye had been completely closed by a swelling of the surrounding tissues, and he felt that the vision in this eye was poorer than previously.

Physical Examination.—Examination on Sept. 9, 1929, showed a well developed and nourished young man, presenting no abnormality except in the integument of the left side of the face, neck and shoulder. First inspection suggested a skin recently traumatized, showing ecchymotic spots, swelling and apparent hematomas. On closer examination these ecchymotic spots, which were so numerous on the front and back of the upper part of the chest and entire shoulder region, were found to be punctate telangiectases which did not disappear on pressure. The left side of the neck was definitely swollen. The left half of the circumference of the neck

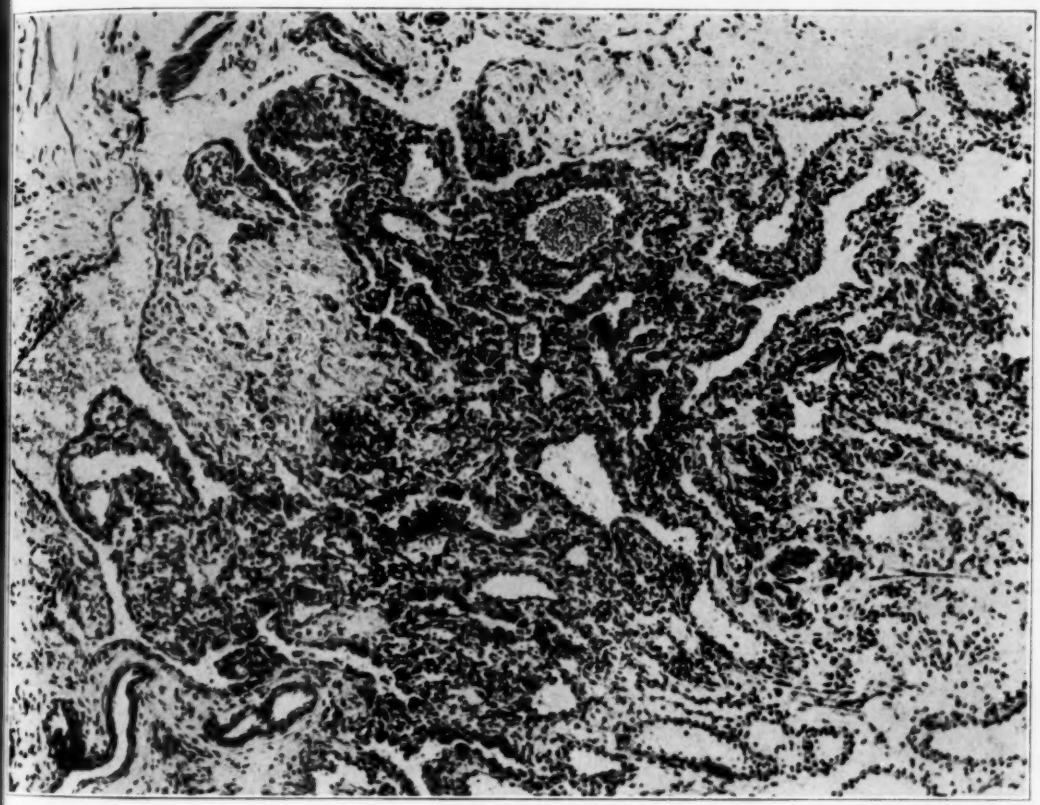

Fig. 3.—A higher power cross-section showing in more detail the type of the tumor. The irregular endothelial-lined spaces, many of which contain red blood cells, are easily seen; × 100.

measured 23.3 cm. as compared with 21.4 cm. for the right half. On palpation the left side had a moré or less spongy feeling. The swelling was irreducible, and the skin over this area was covered with numerous bluish, slightly infiltrated papules which did not fade on pressure. They varied in size from 2 to 5 mm. They were round or multilobular, and some were distinctly elevated and nodular. Behind the left ear was an irregular blue swelling 2 cm. in length, surrounded by bright red spots the size of pinheads. On this side of the head the hair was sparse. Examination of the eyegrounds and x-ray pictures of the skull both gave negative results. Two Wassermann tests of the blood gave negative results.

New lesions were constantly appearing. The patient became aware that a lesion was about to erupt by the burning sensation which preceded the eruption. When he was tired or made attempts to lift a heavy object, the swelling became more prominent. Two of these new growths were removed from the left side of the forehead, one by surgical measures and the other by electric coagulation. Since these operations, the swelling of the eyelids in the morning had become less noticeable.

Fig. 4.—Tumor invading superficial portions of the underlying muscle and growing in more or less papillary projections within a dilated vein. The endothelium is several layers in thickness; × 200.

Pathologic Examination.—The specimen submitted consisted of an elliptical section of skin from the forehead, measuring 2 by 1 by 0.5 cm. In it was a soft, purplish nodule about 1 cm. in diameter. Microscopically, a cross-section showed epidermis, corium and a small amount of the underlying striated muscle. Hair follicles, sebaceous glands and coil glands were present. Surrounding and invading these various structures was the tumor.

The tumor was composed of dilated endothelial-lined spaces containing red blood cells. In some areas the endothelium was stretched thin and appeared to be only one layer in thickness. In others, it had proliferated so that it was 5 or 6

cells in thickness or was growing in papillary projections into the lumen of the vessel. These papillary projections were supported by a connective tissue stroma and showed a tendency to be subdivided into numerous small blood-containing capillaries. The endothelial cells seemed larger than normal with acidophilic cytoplasm and light-staining nuclei. Mitoses were present among these cells, but were rare. The cavities varied greatly in size and shape. Some were circular, others irregular and lobulated. They ranged from two to several hundred microns in diameter.

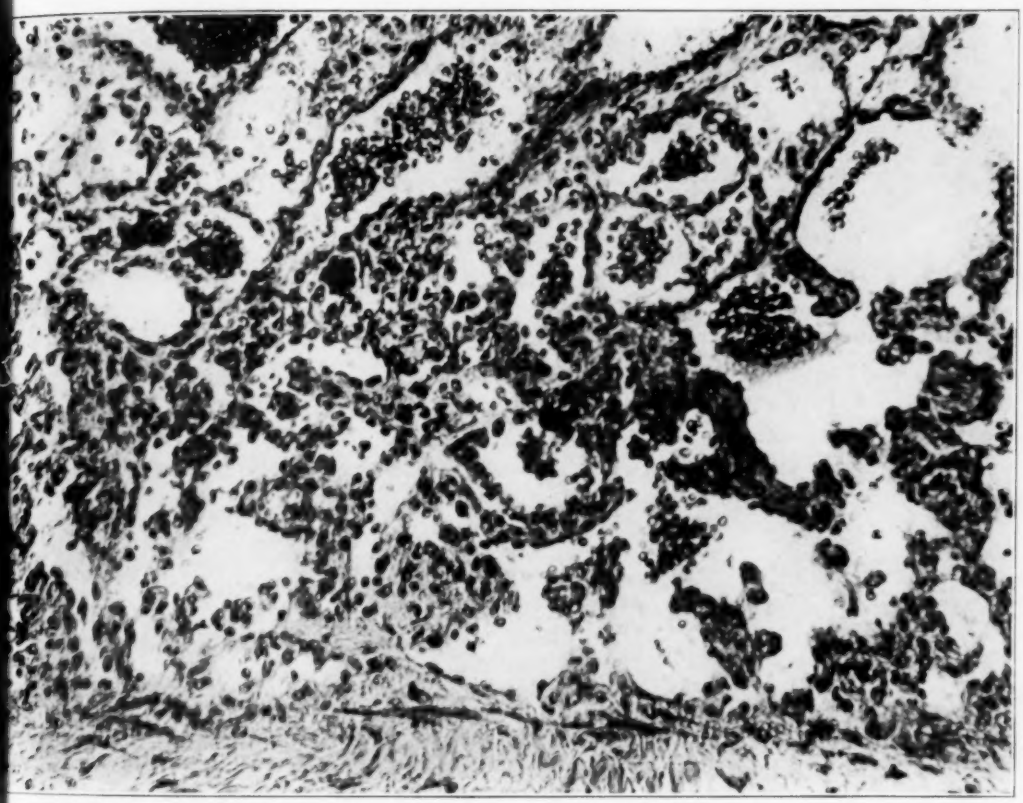

Fig. 5.—A slightly higher power cross-section showing the growth of the tumor along the vein. A few stretched muscle fibers of the vein can be seen running longitudinally along the lower portion of the photomicrograph; × 250.

The tumor was distributed rather diffusely throughout the section, but lay for the most part in the corium surrounding the coil and sweat glands. It could be seen to be invading the fat tissue in this area. At one point it was superficial, lying just below the epidermis. It had also penetrated down between the striated muscle bundles in the deepest portion of the section. In several places it could be seen to be growing in papillary projections inside the lumen of distended veins. Not much of the normal structure of the veins could be made out, but the stretched smooth muscle fibers of their walls remained.

COMMENT

That the lesion described here was a true endothelioblastoma cannot be doubted. Grossly, subcutaneous purplish areas and elevated nodules originating at the point of trauma were seen. Microscopically, one found true tumor growth with reduplication of the endothelial lining of the blood vessels. Mitoses were present, and the tumor was spreading in papillary projections in veins. It, therefore, showed growth and invasion, both characteristic of a true tumor. Judging from the portion examined microscopically, the tumor fell into the group of cavernous hemangio-endothelioblastomas. Whether the mass in the neck would be found to consist of dilated existing veins could not be determined without further operation. It seemed logical to suppose that a circoid aneurysm could undergo neoplastic change just as a congenital nevus might.

When it is considered that the patient had no skin lesions before suffering the trauma, and that the present lesions had developed precisely in the areas which were injured, the etiologic relation of the trauma to the tumor can hardly be doubted. In what way an injury could start a neoplastic process is interesting to consider.

It is easy to understand how a trauma of this variety could initiate an abnormal arteriovenous communication. Such a communication would suddenly compel small vessels to withstand pressure and carry a volume of blood to which they were unaccustomed. The sudden stretching and dilatation of their walls would, in some way, resemble a chronic irritative process. The endothelium might be stimulated to proliferate to protect the vessel, and this proliferation might get beyond control.

SUMMARY

A case is presented which is considered as a true hemangio-endothelioblastoma occurring after trauma.

Such literature as could be found on the relation of this type of tumor to trauma is discussed.

A provisional classification of tumors of this type is given.

DERMATITIS HAEMOSTATICA

REPORT OF A CASE *

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NEW YORK

Under the title "Symmetrical Congestive Mottling of the Skin," Cavafy [1] in 1883 reported two cases in which there was a peculiar symmetrical, blotchy, noninflammatory, dull red mottling of the skin of the extremities without atrophy or abnormal sensation. The sharply circumscribed redness disappeared completely on pressure, leaving behind in the most congested spots a delicate, fawn-colored pigmentation. The condition was looked on as due to venous stasis or passive congestion. Edema and varicosities of the veins were conspicuous by their absence. The following year, Pick [2] described a similar case under the name "erythromelie" or "redness of the extremities." Besides the "symmetrical appearance and restriction to the extremities with the tendency to spreading from the periphery," there was also noted a certain prominence of the veins. Two additional observations were recorded by this writer in 1900 when Klingmüller added his two cases to the literature. In Pick's last two cases and in one of Klingmüller's [3] cases, atrophy and some inflammatory reaction were present, so that when Herxheimer and Hartmann [4] in 1902 tabulated their cases together with those already published and subjected them to a critical review, the cases showing atrophy were classed as examples of acrodermatitis chronica atrophicans. Two years later, Klotz [5] went further in the attempt to distinguish cases of dermatitis haemostatica from all others on record simulating this condition. Thus, in discussing his case, he pointed out that while acrodermatitis chronica atrophicans was featured by chronicity, inflammatory nature and subsequent atrophy and by starting from the periphery of the extremities and while Pick's erythromelie was characterized by phlebectasis, the "wide and uniform extension of the redness over exterior and flexor surfaces of the extremities and the hyperkeratosis (?) differentiated" dermatitis haemostatica from all the others.

* Submitted for publication, March 10, 1930.

1. Cavafy, J.: Tr. Clin. Soc. **16**:43, 1883.

2. Pick, T. F.: Tageblatt der 66 Naturforscher Versammlung in Wien, 1894; Festschrift für Kaposi, 1900, p. 915.

3. Klingmüller, V.: Festschrift für Kaposi, 1900, p. 629.

4. Herxheimer and Hartmann: Ueber Acrodermatitis Chronica Atrophicans, Arch. f. Dermat. u. Syph., 1902, pp. 57 and 255.

5. Klotz, H. G.: A Case of Chronic Symmetrical Diffuse Hyperaemia of the Extremities (Erythromelie), J. Cutan. Dis. **22**:170 (April) 1904.

With the exception of a statement by MacKenna,[6] who, in presenting in his book the anomalies of pigmentation, referred to dermatitis haemostatica as a "brown or brown-purple pigmentation of the legs," a search through all the standard textbooks on diseases of the skin failed to reveal a description of this dermatosis. I am therefore reporting a case with the hope of stimulating further study of this disease.

REPORT OF CASE

History.—L. G., aged 52, married, a tailor, born in Italy, was first seen on Oct. 3, 1928, complaining of a pigmentation of the skin and pain in both legs.

The patient did not recollect having had any diseases during infancy or childhood. He enjoyed good health up to the age of 28; then he contracted gonorrhea, which was complicated by orchitis. About twelve years before he consulted me, he began to have symptoms referable to the biliary system, and two years later the gallbladder and its calculous contents were removed. About one year ago, he noticed the appearance of a spotty, light brown pigmentation about the left internal malleolus. This discoloration extended forward to the anterior aspect of the left ankle. No preceding cellulitis or other inflammatory process had been present. If any reddening of the skin had previously developed, he had not been aware of it, for his "legs felt all right." Two months later, a similar maculation over the inner right malleolus made its appearance. Gradually both of these spotted, light brown patches spread up and around both legs to occupy their present distribution. No change from the original color had been noted in the pigmentation.

Three months ago, the patient began to experience dull, aching pains in both legs, radiating from the knees down along the tibiae in front and over the calves posteriorly. He noticed that the ache was relieved by activity in the affected limbs, so that he suffered only when he was not walking (as while at work) or at night when in bed. Although the pain persisted as the dull, aching kind, it increased somewhat in severity.

No one in his family had had any trouble with the skin nor had any one suffered with a disorder in the legs. Both parents died of old age. He admitted being a hearty eater, a heavy but not a steady drinker of alcoholic liquors and an excessive smoker of tobacco.

Physical Examination.—The patient was short, thick-set and obese. His cheeks were red and criss-crossed with dilated capillaries, while the nose showed some hypertrophy, telangiectasia and mild oiliness of the skin. Some scaliness and a mild alopecia of the scalp were seen. On the face, eyelids, neck and upper part of the chest there were many filiform verrucae. The temples and the upper part of the back were peppered with many pea-sized and smaller seborrheic keratoses. Scattered here and there over the trunk were many pinhead-sized and larger senile angiomas. The pupils were equal and reacted normally. The mucous membranes were pinkish red. The teeth were carious and the gums puffy. The chest was barrel shaped, the lungs were clear and the heart sounds were faint. No arrhythmia or other abnormality was noted. The abdomen was protuberant. Tympanites was present, but no ascites was found. The liver was not enlarged. On the right side about three fingerbreadths below the costal margin there was a linear scar running from the midline straight across for a length of 28 cm. to the

6. MacKenna, R. W.: Diseases of the Skin, New York, William Wood & Company, 1923, p. 402.

right flank. The legs were pigmented light brown, and a slight depression was seen where the garters had encircled the limbs. The blood pressure was 145 systolic and 90 diastolic. There was no adenopathy.

The skin of both legs (figs. 1 and 2) showed the following: There was a light brown, spotty and diffuse mottling covering both ankles and extending up and around both legs in a geographic fashion to the level of the juncture of the mid

Fig. 1.—Dermatitis haemostatica. Note the distribution.

and upper thirds. The skin was dry and had a fine, almost invisible pityriasic scaling, and the pigmented portion seemed somewhat depressed below the level of the rest of the skin. Also the pigmented patches felt firmer and slightly adherent to the underlying tissues. There was no change in the temperature of the involved skin, nor could one obtain definite pitting on pressure. The knee and ankle joints were freely movable. No fissures, cracks or ulcerations were observed. No wrinkling was noted, nor were dilated veins evident. The superficial veins were

few and barely visible. Dehematization did not cause any change in the color of the eruption. There were no hyperemic areas. Except for the fine desquamation, no macroscopic evidence of a hyperkeratosis could be made out. Scratch marks were absent. The whole process with its pigmentation, the dry, slightly scaly and firmer skin and absence of any sign of inflammation suggested a process that had already gone through the stage of involution.

Biopsy.—A piece of the skin was excised from the center of the pigmented patch over the right tibia. After one week, the sutures broke down, and it took six more weeks for the wound to granulate, in spite of vigorous attempts to stimulate

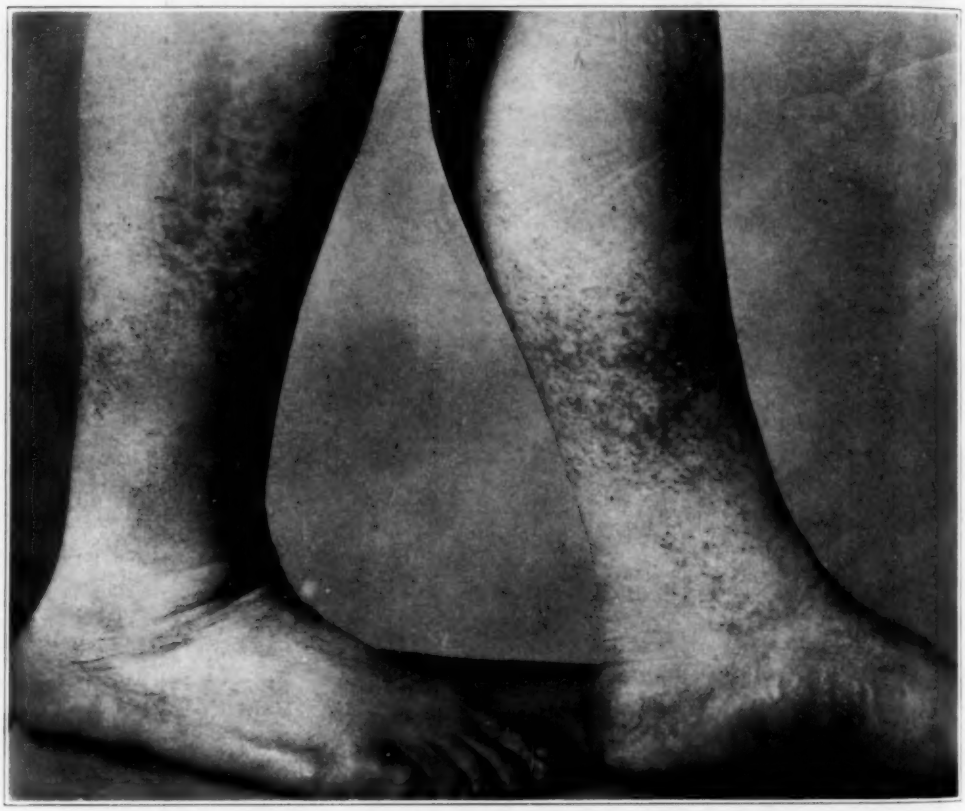

Fig. 2.—Lateral view of the distribution of dermatitis haemostatica.

healing. There remained a dime-sized, depressed, dark brown scar. D. L. Satenstein of the New York Post-Graduate Hospital examined the specimen and gave the following report (figs. 3 and 4).

"There is a marked stiffening and condensation of the connective tissue of the entire cutis. The vessels of the mid and upper cutis are moderately dilated and some are filled with blood. There is a very sparse cellular reaction in the subepidermic zone. The epidermis is markedly flattened. The papillary bodies and the rete pegs are entirely obliterated. The entire process gives one the impression of an end result. There is no evidence of activity.

"The elastic tissue is well retained throughout the specimen. We are evidently dealing with a process which ends in a sclerosis of the tissue. From the diagnosis submitted the picture fits best with that of dermatitis hemostatica."

Laboratory Examination.—Repeated examinations of the urine were done. As a rule, albumin in faint or marked traces was found. Sugar was present once. The rest of the results of the urinalysis were invariably negative. The Wassermann reaction was found to be negative on various occasions.

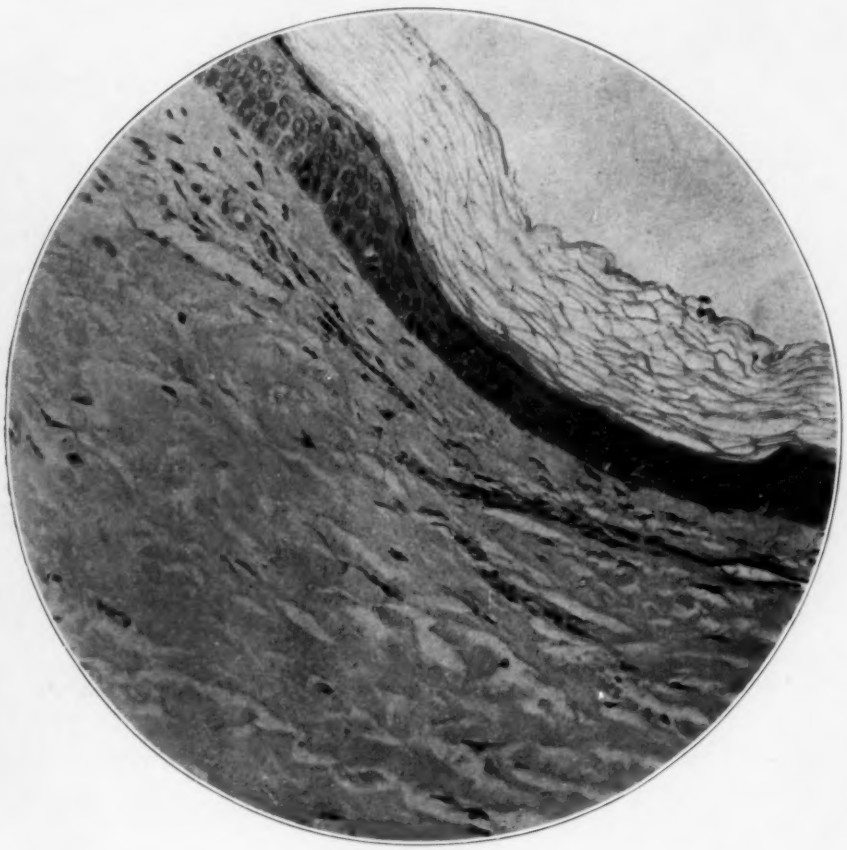

Fig. 3.—High power magnification of a section showing flattened epidermis, moderate dilatation of the blood vessels and stiffening and condensation of the connective tissue in the entire cutis.

The blood showed a color index of 0.90; a hemoglobin content of 80 per cent; 6,100 white blood cells, and 3,850,000 erythrocytes. The differential count showed: polymorphonuclears, 61 per cent; small lymphocytes, 19 per cent, and large lymphocytes, 20 per cent. No other type of cell was seen in the blood smear.

The icterus index was 11.5. The van den Bergh reaction was absent. The nonprotein nitrogen was 27.64 mg.; the urea nitrogen, 17.19 mg.; uric acid, 4.4 mg.; creatinine, 1.6 mg.; chlorides, 0.313 per cent, and the sugar, 0.140 per cent.

Treatment.—No systemic or local therapy was prescribed, since it was felt that the anatomic changes present could not be corrected. However, the patient was urged to improve the sluggish circulation in the extremities by discarding the tight garters which he had been in the habit of using and by not allowing his legs to remain idle too long, except when asleep. Massage combined with the use of chloroform liniment was discontinued soon after it was suggested to the patient, because it was too irritating. Since this time he has been observed every three

Fig. 4.—Low power magnification of a section showing sclerosis of the connective tissue with sparse infiltration of cells and flattened epidermis.

months. The dull ache disappeared after five weeks. The eruption has remained stationary, but the skin is somewhat drier, so that recently I suggested that the patient rub in some hydrous wool fat or cocoa butter. The yellowish-brown discoloration has not faded.

SUMMARY

1. A middle-aged man noted a yellow or light brown pigmentation gradually develop about both ankles without any previous inflammatory process in the skin (?).

2. After the eruption had attained its present distribution, a dull ache in both legs and a suggestion of edema appeared.

3. There were no "cayenne-pepper spots" or other criteria characteristic of Schamberg's progressive pigmentary dermatosis; nor could purpura annularis telangiectodes (Majocchi) and angioma serpiginosum (Crocker) be confused with the case presented.

4. Superficial varices were absent; atrophy was not present.

JOSEPH GRÜNPECK OF BURCKHAUSEN AND HIS TRACTATUS DE PESTILENTIALI SCORRA SIVE MALA DE FRANZOS *

THE HONORABLE WILLIAM RENWICK RIDDELL,
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President, Canadian Social Hygiene Council
TORONTO, CANADA

Sebastian Brant, the humanist, who with Erasmus and Vives formed the Triumvirate of the Renaissance in Middle Europe, and who was by no means the least learned or least renowned of the three, published at Basel, in November, 1496, the first work in which the new and fearful Disease, the Morbus Gallicus, was mentioned, a broadside in verse, entitled "De Pestilentiali Scorra sive Impetiginé Anni XCVI," of which I have given a translation in the ARCHIVES OF DERMATOLOGY AND SYPHILOLOGY.[1]

In the following month, Joseph Grünpeck, of Burckhausen (born in 1473), who does not seem to have been a physician, published at Augsburg,[2] his "Tractatus de pestilentiali scorra sive Mala de Franzos," which under this name purported to be a commentary on Brant's poem. He is unknown to fame, being known only by this treatise. His name does not appear in Chalmers' or any of the standard biographies, and his treatise received only the following mention in Robert Watt's "Bibliotheca Brittanica":[3] "Grunpeck—Tractatus de Pestilentiali Scorra, &c, without place or date, but seemingly printed by Boettiger, at Leipsic, 4 to."

A facsimile of the Magdeburg edition of 1498, of which what is believed to be a unique copy is in the British Museum in London, has been included in the sumptuous small quarto, "The Earliest Printed Literature on Syphilis, being Ten Tractates from the Years 1495-1498."[4]

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* Submitted for publication, Feb. 6, 1930.

1. Riddell, W. R.: Sebastian Brant: De Pestilentiali Scorra sive Impetigine Anni XCVI, Arch. Dermat. & Syph. **20**:63 (July) 1929.

2. Augsburg is a city of importance in Bavaria, one of the many Roman cities called after the Emperor Augustus or the Empress Augusta. This Augusta was Augusta Vindelicorum, Augusta of the Vindelici. The city is particularly noted for its splendid churches, the most venerable of which is the Catholic Cathedral, which is mentioned later in the text. The "Augsburg Confession" is celebrated in the religious history of Central Europe and of the world.

3. Watt, R.: Bibliotheca Brittanica, Edinburgh, 1824, vol. 1, p. 446 m.

4. The Earliest Printed Literature on Syphilis, Being Ten Tractates from the Years 1495-1498, Florence, R. Lier & Company, 1925.

This work has an excellent introduction and accessory material by Karl Sudhoff, adapted by Charles Singer, and is a credit to papermaker, printer, proofreader, binder and annotators alike.

The text is in the crabbed and annoying type of the period, which aped the bewildering contractions of the medieval scribes. Those of my generation who were nurtured on Bullion's Greek Grammar will remember the Plate of Contractions in Greek manuscripts given in that book; the medieval penmen were as poor in Latin as in Greek.

An example or two may be given. Any letter with a macron over it has a following "m" or "n," or both, understood: "Oī means "omni;" "o$\bar{m}$s," "omnes;" "$\bar{h}$nes," "homines," and "originē," "originem." If the mark is a circumflex, it may indicate any one of several things: "P̃" means "per," "prae," "pre" or "pro," and "hn̄t," "habent." A little figure like a 9 means "us;" e.g., "grad⁹," "gradus." Often, indeed, the reader is driven to the context to make out the meaning. A single character may stand for two or more letters; e.g., an initial "ex" is almost always expressed by a single type. The Latin is fair, the oratio obliqua being much favored; neologisms are not wanting, but as a rule the classical orthography and meaning of words are adhered to. No one would read the work for pleasure, and it is of little or no interest to any but a medical, philosophical or philological antiquarian. I should never have thought it worth while to translate it but for the request of Dr. Harold Cole, of Cleveland.

A few years after the publication of this Latin work, it also appeared in German, published at Augsburg under the title, "Joseph Grünpeck von Burkhausen: Ein hübscher Tractat von dem Ursprung des Bösen Franzos, Augsburg, Hans Schauer, 1496." This is also reprinted in the volume spoken of.[4] It presents no difficulties to one acquainted with modern German, while the type is clear and legible, much better, be it said, than the ordinary German text, the old black-letter, which was got rid of centuries ago in England. I venture to hope that no enthusiast will ask me to translate it also.

The title of the 1498 Magdeburg edition reads:

¶ Tractatus de Pestilentiali Scorra siue mala de Franzos.[5] Originem Remediaque eiusdem continens. compilatus a venerabili viro Magistro

5. "Mala de Franzos" was taken from the Italian, or rather the Neapolitan, as a name for syphilis. "Male," in the masculine gender, is the proper form. It means disease of the French, Latinized "morbus gallicus," perhaps the most common name for the many-named disease until Fracastorius' invented name Syphilis was adopted. Fracastorius said that the disease originated in the French invading army at Naples in the last decade of the fifteenth century, from which the name Gallicus was given to the disease; the French, however, retaliated by calling the disease Italian. "The Spaniards call it Patursa, the Germans sometimes Mevius, sometimes Gallicus; some, imposing a new name, call it Pudendagra, which is

Joseph Grunpeck de Burckhausen, super Carmina quedam [6] Sebastiani Brant vtriusque iuris [7] professoris.

Treatise concerning the Pestilential Scorra or Morbus Gallicus. Containing the Origin and Remedies compiled by the venerable Master Joseph Grünpeck of Burckhausen, commenting on certain verses of Sebastian Brant, Professor of Laws.

This is followed by a woodcut taken from Brant's work, and but slightly modified. The central figure is the Virgin Mary, seated crowned on a throne with the Holy Babe in her arms. In Brant's picture, barbed shafts flow from the hand of the Child for the punishment of sinful humanity; Grünpeck changed these into healing rays to benefit suffering humanity. In the original picture, a corpse lies in the foreground in

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derived from Pudenda in the same way as Mentagra, which is derived from Mentum (the chin) and of which Pliny writes that it was a new disease so named by the ancients; we (Fracastorius), in our lighter works, called it Syphilis." As is well known, the English called it the French pox. The Spanish name Patursa seems to have died out, even in Spanish countries; at least, the physicians in Cuba and Venezuela whom I have consulted know nothing of it. The modern name in Spanish is Sifile. Du Cange did not mention the word Patursa in his voluminous Glossarium Mediae et Infirmae Latinitatis. Mevius seems equally unknown in modern German; in any case, the term should be Morbus Sancti Maevii, not Morbus Mevius. Giovanni de Vigo, physician to Pope Julius II, in his Practica in Arte Chirugica Copiosa, book 5, published in 1514, said that the Spaniards called it las baus (i.e., the pocks), the Genoese lo male de le tavelle, the Tuscans lo male de le Bulle and the Lombards lo male de le brosule; other names were Saint Sement's disease, St. Evagrius' disease, St. Mein's disease and Spanish disease. Jacques de Bethencourt, in 1579, was the first to give it the name venereal disease (morbus venereus) (footnote 26). In Iwan Block's well known work, "Der Ursprung der Syphilis (Jena, 1901)," a simple list of the names given to the disease fills eighteen pages (pp. 297-315).

6. Readers of medieval publications in Latin will have noticed the almost constant use of the letter "e" for the diphthong "æ." For example, comparing the present declension of "musa" with that then employed, one would have:

	Singular		Plural	
	Present	Medieval	Present	Medieval
Nom.	Musa	Musa	Musae	Muse
Gen.	Musae	Muse	Musarum	Musarum
Dat.	Musae	Muse	Musis	Musis
Acc.	Musam	Musam	Musas	Musas
Voc.	Musa	Musa	Musae	Muse
Abl.	Musa	Musa	Musis	Musis

In the medieval literature one constantly meets such words as "quedam" spelled with an "e" instead of the diphthong.

7. Many graduates of universities do not recall that the double L in LL.B. and LL.D. indicates at least two species of laws, generally the Common Law (of England) and the Civil Law (of Rome); while my D.C.L. is indicative of a Doctorate of the Civil Law only, my J.U.D. is Juris Utriusque Doctor, Doctor of either Law and equivalent to LL.D. The Professor of both Laws is now LL.P., if he cares so to describe himself.

Fig. 1.—Illustration used in Sebastian Brant's "De pestilentiali scorra sive Impetigine Anni XCVI" and later modified by Grünpeck. (Both this and figure 2 are reprinted from "The Earliest Printed Literature on Syphilis," R. Lier & Company, Florence, 1925.)

Tractatus de Pestilenciali Scor
ra siue mala de franzos. Originem Remediaq; eiusdem coutinẽs
cõpilat⁹ a venerabili viro Magistro Joseph Grunpeck de Burck
hausenn. super carmina quedam Sebastiani Brandt vtriusq; iuris
professoris.

¶ finis huius Tractatus Magdeburge per Mauricium Bran
dis impressus. Anno xpi. 1498 Decimo octauo Kalendas Maij.

¶ Querimonia Mentagrici.

¶ Dicite morborum causas et signa docentes
Cur mihi Mentastra pectus et ora tument
Increscunt papule distorto corpore putres
Et minuit vires semper in ore sitis
Horriferum squalet monstrum non tristius illud
Vt reor infernus quod cubat ante lacus
Nulla quies: totas noctes suspiria duco
Polluit egrediens proxima queq; vapor
Quis fert auxilium: feret hic perdoctus Joseph
Qui medicam nobis accumulauit opem.

Fig. 2.—Facsimile of title and finis of Grünpeck's "Tractatus de pestilentiali scorra sive mala de Franzos," from the unique copy of the 1498 Magdeburg edition in the British Museum.

military uniform, surrounded by a group of praying women; in the copy, the corpse is covered with the marks of the Scorra and is separated from the group of women.

The "Finis" of the same edition reads:

¶ Finis huius Tractatus Magdeburge per Mauricium Brantdiss impressus. Anno Xti 1498 Decimo octauo Kalendas Maij.

QUERIMONIA MENTAGRICI.

¶ Dicite morborum causas et signa docentes
Cur mihi Mentastra[8] pectus et ora tument
Increscunt papule distorto corpore putres
Et minuit vires semper in ore sitis
Horriferum squalet monstrum non tristius illud
Vt reor infernus quod cubat ante lacus
Nulla quies: totas noctes suspiria duco
Polluit egrediens proxima queque vapor
Quis fert auxilium: feret hic perdoctus Joseph
Qui medicam nobis accumulauit opem.

End of this Treatise, printed at Magdeburg by Maurice Brantdiss, April 14, A.D. 1498.

COMPLAINT OF THE SYPHILITIC

Tell me, ye who teach the causes and symptoms of diseases
Why the morbus gallicus tumefies breast and mouth to me,
Putrid papulae increase in the distorted body
And constant thirst in the mouth diminishes the powers?
Not more filthy, I believe, that horrific monster
That lies in Hell before the lakes[9] (of fire and brimstone).
No rest in there: all night long, I breathe out sighs
Then every breath exhaled brings pollution.
Who brings help? This very learned Joseph will bring it,
He who has gathered for us the aid of medicine.

Given at Augusta (i.e., Augusta Vindelicorum, the modern Augsburg) from the House of Master Sixtus Staimack, my distinguished Patron, this Quindecima Kalend, November (i.e., October 30), Anno 1498.

¶ Eulogium of Sebastian Brannt, Professor of Laws (J.U.P.) of the Scorra Pestilentialis or Mala de Franzos (i.e., morbus gallicus), in the year 96 to Johannes Capinos (i.e., John Reuchlin), Inter-

8. "Mentastra" properly means wild mint and the word is used in that sense by Pliny and Columella (this distinguished man seems to be quite unknown to fame; the biographers have passed him over entirely); here, however, it is one of the myriad names by which syphilis was known. "Mentulagra" was well known; it was derived from "mentula," the penis; and "mentastrum" or "mentastra" was a variant.

9. A reference to Revelations 10:20, in which Saint John the Divine saw the Beast and the False Prophet "both cast alive into a lake of fire burning with brimstone." This horror is spoken of also in Revelations 20:10 and 21:8.

preter of the Imperial Laws (i. e., the laws of the Holy Roman Empire).

(Here follow the verses of Brant which I have translated [1] and which I do not repeat here; what slight differences there are are merely verbal and in no instance affect the sense. Then comes the work of Grünpeck himself, in prose.)

¶ *To the Distinguished and Noble Gentleman, Bernhard de Waltkirch, Master of Liberal Arts,*[10] *Light and Ornament of the Danubian Literary Society, and Canon of the Augustine Cathedral Church—Joseph Grünpeck de Burckhausen sends greeting.*

Recently, most learned man, I have fallen in with a certain most exact and accurate eulogium by Sebastian Brannt, a man in the highest degree learned and distinguished, whose splendid manner of writing and brilliant teaching made distinguished by the weight of his thought and illustrated by the light of history, have marvelously delighted me. These writings, at all events, have not less of utility than of (Attic) salt [11] for the help of all men. Among other evils deriving from the torrents and tempests of our age are this more deadly than any other disease, an infection most pestiferous, and every kind of epidemic—so suddenly was it sent upon humanity as it would seem a stroke from Heaven, what I shall call the morbus gallicus, which is as horrible as it is filthy, and it would seem as though a new Hercules were come to terrify mankind. Such, indeed, is its poison that, as I think from the symptoms, the bile will mix with it to torture the human frame perpetually. Then the sluggish black bile [12] (Melanchole, a fabulous "humor" distinguished in medieval physiology from the yellow bile, which actually flows from the liver)

10. Our M.A. or A.M. The degree or diploma of M.L.A., Mistress of Liberal Arts, is, however, still granted by some institutions of learning.

11. "Sal" standing by itself, even in classical Latin, often had the connotation of wit, acuteness or brilliancy, while "Sal Atticum" was a commonplace. Cicero, Terence and Pliny all use the single word. Horace's verses are well known, in which he tells of Lucilius, "Sale multo urbem defricuit, charta laudatur eadem" (Satirae I, X, 3), or of the biting wit of that other, "hic delectator iambis ille bioneis sermonibus et sale nigro."

12. In the medieval physiology, as is well known, there were four natural humors of the body, on the proper mixture of which, the "temperamentum" or "temperies," the health of the body, depended. They were: Sanguis, the blood; Pituita, Phlegma or Rheuma, a mythical fluid now remembered by terms for the filth of the nose, and by "rheumatism," named after it; Bilis, Chole or Cholera, the yellow bile, which is still recognized, and Melanchole, black bile, which has disappeared, leaving behind as a reminder of its former significance, "melancholy" which was supposed to come from it. Any excess of one humor, any error in the "temperies" or an admixture, resulted in a "temperament," literally a mixture. An excess of blood gave the sanguine, that of phlegm the phlegmatic, that of bile the bilious and that of black bile the melancholic temperament; these were sometimes called "habitudes," the modern term "habits of body."

increases its venom, already more acrid than any poison; and, finally, the Pituita (Phlegma, another of the medieval humors) impelled by its primal nature, in like manner, makes it perfect. And so this "materia,"[13] gathered together into one place by the aforesaid corrupt humors, so sordid, fetid, squalid, rancid, impure and infected by every kind of filth, becomes more and more unwholesome, so that nothing can possibly be seen more abhorrent to the very nature of man. When the attempt is made to expel it, it sinks down into the congeries of veins around the pudenda of men and women; and, at length, the walls and defenses of the body being frequently shaken, becoming weakened and, as it were, worn down by the force of this barbed arrow, men hasten to their death. This syphilis seems to have an affinity with the Plague.

When these verses, put together with accuracy, diligence and singular skill by this professor of laws and containing the causes of and remedies for this most destructive disease, came to my hands, immediately a certain regret and pity struck my heart (which cannot be appreciated by every one, on account of the seriousness and difficulty of the writing as well as its brevity). And lest the people should be deprived of so salutary a thing, I have translated it into the mother idiom, so to speak. Moreover, the origin of this filthy disorder, which some are accustomed to call Mentagora, and others, Scorra or Planta Noctis (night-plant) from its arising from the disposition of the stars, and also the remedies selected from the most approved works of physicians, I have exerted all my abilities to publish in a little tract, which, as I hope, will be thought acceptable to you, a man gifted with every virtue and nobility, a most worthy canon of this Augustan chapter,[14] who has but just emerged from adolescence. Having assumed the toga virilis, you have striven to surpass all your contemporaries; you claim as peculiarly your own those attributes which are seen to pertain in perfection to the preeminence and luster of the perfect man. You are to be celebrated by a greater herald than my dedicating this little book to you, but not so much will this, my work, be beneath your merits but that it will come as a consolation and help to you along with all those who are gifted with the discipline of the liberal arts and especially to men suffering with this disease.

Fare you well. I wish you every happiness.

¶ *Treatise of the origin of the Scorra Pestilentialis or Mala de Franzos, by Master Joseph Grünpeck of Burckhausen, begun under his happy star.*

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13. The "materia" was the substance, actual or imaginary, in which the contagion worked, generally one of the humors.

14. As has been said, Augsburg's most celebrated and notable ecclesiastical building is the Catholic Cathedral; Grünpeck's friend was a canon in this cathedral.

¶ *First Chapter of the plagues and afflictions of men. Whether they come naturally or supernaturally by the will of God.*

The wisest investigators of things that are hidden and withdrawn from the senses are accustomed to say that the human frame is affected (injuriously) by various things adverse and detrimental to health, so that that which is born of a nature of so varied and multiplex a quality cannot be debilitated and at length broken by diseases except by the same,[15] when everything that is connected with it is finally dissolved into the same. And, too, all things disappear to the source whence they arise; and there is laboring under an infinite number of familiar and well known diseases, as well as being afflicted with rare and foreign tempests, so that many filled with wonder, observing this brief time, as it were but a point for life, tormented by so many kinds of peril, as well diseases as cares, and so great a fear, have ventured to say that nature has for man nothing very stable in this short course of life, as the senses become dull and the members distorted; the sight dies first; the hearing and even the teeth, the very instruments of food, soon glide away before advancing age. And yet, the period of life is to be reckoned with; and, consequently, it is looked on as a miracle by them that Xenophonius Musicus lived 105 years without any bodily indisposition.

A miserable life, this, when too frequently are tempests stirred up in it by the most terrible floods and storms; often, indeed, we are subjected to shipwreck; nature is itself a cruel stepmother [16] to man; it never has a surfeit of these ills. Day by day, every hour and, I might say, every moment, greater disturbances are excited . . . and against us now rage the dire and terrible arms of Mars, now the wretched evils due to sickle-bearing [17] Saturn, now famine, ever the first companion of great afflictions. And now, in addition, we are threatened with a new kind of disease, hateful by the ferocity of its nature, which was recently sent down upon the French from the Citadel of the Immortal Gods; it is striving to invade all the cardinal points of the globe, being most atrociously incrudescent in many regions. And the Praenestine Sisters [18]

15. The meaning is that before a disease can conquer the human body, it must reduce the body to its own condition ("ratio").

16. The "noverca saeva" of Virgil and the "noverca terribilis" of Ovid, were as well known as "the stepmother's breath" of later times. The poor stepmother has never had a good word said for her that I can find.

17. Saturn was generally represented as bearing a sickle, the weapon with which he did terrible things to his father Uranus; but there is nothing so bad that it might not be worse, and if he had not mutilated the old god there would never have been a Venus Anadyomene, and lovers would have sighed in vain.

18. Praeneste was one of the most noted cities of ancient Latium; it was famed for its roses, for its nuts (vegetable), and still more for its Temple of Fortune and the associated oracle; it is the present Palestrina. The Praenestine Sisters were the Fortunae.

(i.e., the Fortunae) turn hither and thither everything in the world; nor do these tempests remain in the same tracks.

May I not be more tedious in considering all of these than they are in issuing from their fountain! Whether they are natural or celestial and God-sent is to be discussed in this work. I shall show whether in part naturally from the influence of the Stars, in part by the will of God, these are wont to occur: All this I shall consider in proper order.

¶ *Second Chapter concerning the Pestilential Arrows, the atrocity of Wars and Famine and the Misfortunes of other things of that character—in what manner they came supernaturally and by the Divine will, from which will appear the origin of this Malum de Franzos.*

I shall make use of the authority of the most weighty of those contemplators of the heavens who devoted themselves to the Sacred Writings. It should be carefully stated, for reason so teaches, that there are three kinds of darts with which the Immortal Gods repress at the very beginning the nefarious audacity of men, just as they consider three kinds of sin easily the greatest of all sins; which are insolence, too great desire for money and taking away by force the property of another to which one has no claim. These ills always follow, as companions, pestilence, effusion of blood and scarcity of food. Indeed, the Sacred Prophets bear witness to this: first, Ezekiel in the seventh chapter,[19] "I will leave of them few men from sword and famine and pestilence, so that they shall tell all their wickedness among the nations;" then again in the fifth chapter,[20] "Pestilence, famine and blood will pass through by thee and I will draw the sword;" then Jeremiah in the twenty-ninth chapter,[21] "I will persecute them with the sword, with the famine and with the pestilence." All peoples who are so infected will suffer these torments and inflictions. In our times, these are repeated more frequently; rarely are they latent a lustrum.[22] In primitive times men were wont to live more quietly for eight lustrums (i.e., for eighty years).

19. I presume that this is not intended to be an exact quotation. It is only in comparatively modern times that any pains have been taken to quote exactly. Even now, there are many who imagine that if they give the substance of a passage, that is all that is required. Perhaps the alleged quotation is a combination of Ezekiel 6:12 and 7:16.

20. This is Ezekiel 5:17: "So will I send upon you famine and evil beasts and they shall bereave thee; and pestilence and blood will pass through thee; and I will bring the sword upon thee."

21. There is nothing in the twenty-ninth chapter that is at all fairly rendered by the language of the text: the pestilence is mentioned as a punishment in 5:12, 17, 6:11, 7:15 and 28:23.

22. The reference, I presume, is to Jeremiah 47:28, though neither in this nor in any other alleged quotation from the Bible is the precise language of the original Vulgate or other versions employed.

The causes of this ceasing were these: When the most execrable and heinous sins were committed by all, which humanity shuddered at, every one exhibited the greatest offense, even while he pretended he was guilty only of the least, for every age is contaminated by its own particular sins; so that childhood itself did not want such offenses. Consequently, those sins which were latent in the earlier times, the most horrible offenses, made their inroads. This wickedness did not remain hidden from the Divine Will in the land, for which reason this vile filth was sent down for the terrorizing of man, which is called Mala de Franzos; without difficulty, it may be seen to have come from supernal vengeance; this is the cooperating cause, for such powers are denied to the stars themselves; according to Jeremiah,[22] "Fear ye not the signs in the heavens which affright the nations, when the Lord sent the pestilence upon Israel."

¶ *Third Chapter, concerning the aforesaid darts and pestilence-bearing thunderbolts. In what way, they originate from nature itself and the configurations of the Stars.*

When I strive to enter the sacred penetralia of Nature, the cause of these thunderbolts is very easily laid bare to me, contemplating; for with so multiform a maze, as is the event of varying fortune, human bodies enter by various and multiplex courses and make their appearance. When I entered furtively, the doors being unlocked, there was not the slightest morsel of delay in the speediest course; I grasped the causes of these torments.

The human body is built up of four elements: Earth, Water, Fire and Air.[23] Earth is most manifest in the flesh and bones by reason of their terrene solidity; Water, in the humors; Heaven (i.e., Air) is contained in the lungs and is therefore in constant motion because the

23. Just as there were four humors in the body, so in medieval philosophy there were four elements of which all things were composed: Earth, Air, Fire and Water. The four elements were supposed to have some mystic relation to the four conceptions, Life, Death, Soul and Matter; to the four, Day, Night, Birth and Death; and even to the four seasons, Spring, Summer, Autumn and Winter—but no two philosophers agreed in the explanation of the connection supposed. This mysticism went so far that some vehemently insisted—and, indeed, some still insist—that the Sphinx was intended to give a synthetic expression of the four elements: the wings for the Air, the body of the bull for the Earth, the woman's breasts for the passive principle of Water and the lion's claws for Fire. Non fuit, non est, modus in rebus. There were also the four qualities: hot, cold, dry and wet; Earth was cold and dry; Air, hot and wet; Fire, hot and dry, and Water, cold and wet. The predominance of each element in a particular part of the body is mentioned in the text. The curious idea as to the conical shape of the heart, corresponding to that of a fire, is characteristic of the age which sought analogies or "characteristics" in medicine as elsewhere. Liver-shaped leaves were good medicine for the liver, heart-shaped for the heart and sharp crabs' claws for a sharp pain.

winnowing-machine of the heart so acts lest the heart be consumed and dissolved by the excess of heat; the seat of Fire is in the heart, and so the base is broader and the apex narrower, the form which the figure of Fire ever retains.

Then from mutations of the elements follows alteration of the body; the body changing, its nature also is changed. From this cause come wars: For the bodies being inflamed, as is wont to happen when dryness prevails to the greatest degree,[24] which occurs when there is a conjunction of the two stars, Saturn and Jupiter in the Fiery Sign, there come overturn of worlds and camps, changes of kings and slaughter of peoples.

From the same cause, scarcity of grain is suffered from, as Aristotle says in his book, "Of the Nature and Properties of the Elements." [25] "The fertility and sterility of the year come from the mutation of the stars in the different signs over the Seven Climates: [26] There is mor-

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24. Heat, cold, dryness, bitterness, acidity and some other qualities had three degrees. A drug was hot in the third degree when it was as biting as possible. Under a fiery sign, dryness to the third degree was to be expected in times when the stars governed all earthly things from kingdoms to moles.

25. This is Aristotle's well known work, The Categories, containing his fundamental doctrine of fundamental substances, sine quos nihil fiat aut est.

26. The Seven Climates were the seven bands or zones into which the earth and the corresponding heavens were divided. We now have only five; but the Tropical and Arctic Circles were a long way in the future in the times of Aristotle, and our heliocentric system replacing the geocentric has also displaced the correspondence of the skies to the earth. Here is the beginning of the astrological theory of disease. How many persons bear in mind that the "Flu" owes its name to the fact that its original, the Influenza, was so called because it was due to the influence (Italian, influenza) of the stars? It is not without interest to note that those who made so much of the stars and signs of the zodiac were considered heretics by some of the clergy; witness what was said in Dr. Gabriel Prateolus Marcossium's "Elenchus Haereticorum Omnium" (Cologne, 1605, vol. 11, p. 322, *a* and *b*) under the head, "Mathematici"; "The Mathematici are counted among the heretics by Bishop Philostratus in the book he wrote on heresies—calling them most absurd men, advancing every kind of error and wickedness, as they asserted that men were born according to the signs of the zodiac, twelve in number. He says that very many of the ignorant, listening to them, neglect the Law of God and do not hesitate to follow the vain teachings of these Mathematici, whereby the saying of the Apostle is fulfilled: 'They betake themselves to and serve the creature rather than the Creator;' and, again, 'See to it that no man deceive you by empty and fallacious philosophy according to the elements of this world and not according to Christ, inasmuch as all plentitude dwells in him.' And so they do not know that the twelve signs of the zodiac of which they speak are the different climates and divers regions placed up in the universe by God, that they may furnish habitations. There are different temperaments of places and seasons, as hot, cold, dry and wet, just as there are four angles of the earth, out of which come abundant fountains, which by their innate virtue, the wholesome admixture existing, respire alternately. When the admixture, favorable to health, is diffused,

tality of the terrified nations, and kingdoms become vacant on the conjunction of the two stars, Saturn and Jupiter, and, indeed, mighty dire happenings come threefold on threefold from their mutation; moreover, a conjunction of Mars with these planets in their setting will signify a drouth on the earth."

So, too, Albertus [27] (i.e., Albertus Magnus) in his book, "Of the Nature and Properties of the Elements," asserts that effects follow according to the concurrence of their powers.

Pestilence, then, is produced by the contamination of the heavens (i.e., the air), for when breathing itself out much changed and infected with putrefaction, the element affects us, living animals depending for life on air, inasmuch as we breathe; so also with other creatures breathing by the lungs. It is necessary that this air, putrefied and inhaled, should corrupt the inner parts.

Accordingly, how the Scorra Pestilentialis brings out its hidden cause from the secrets of nature is to be sought higher up and pursued to the operation of the stars.

¶ *Fourth Chapter, about to Speak of the Scorra Pestilentialis or Malum de Franzos, Tracing its Origin from the Conjunction of Stars. The Primeval Formation of the Heavens is Seen to be Premeditated.*

As I am about to contemplate the lofty seat of Divine Majesty and the Omnipotent Creator, which is embellished with seven wandering stars

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it ministers to the inhabitants. And so the divine power, conceded and imparted by the Lord for pleasant and prosperous life, is recognized. Thus, Philostratus from this it is manifest that these mathematical studies—few, as they are, so far as I know—are placed among the heresies: As say St. Augustine (De Doctrina Christiana, book 2) and Eusebius (De Praeparatione Evangelica), they in no wise pertain to salvation but rather lead to error. Nor, says St. Jerome, are they sciences of piety. Indeed, this mathematical error was prohibited by the old laws of the Roman peoples, 'C. de Maleficis et Mathematicis.' The predictions of the Chaldaeans and mathematicians were condemned, as they considered fixed and inevitable what was once determined by the course of the stars. Whence, formerly—as Nicephorus says in his 'Ecclesiastica Historia,' book 9, cap. 5—the Bishops looked on apotelesmatic mathematics and astronomy as a form of religion. Telling of Eusebius, Bishop of Emesa, he says: 'When he was accused at Emesa of cultivating that part of astronomy that is called apotelesmatic (i.e., dealing with horoscopes), which is concerned with giving responses, he fled to Laodicea to his old friend, Georgius, and hastening with him to Antioch, to Phlacitus and Narcissus, he was restored to his episcopate at Emesa.' Any one who desires to learn more of this subject may read Cornelius Agrippa, 'De Vanitate Scientiarum,' where he deals with Divination in general; so also, St. Augustine, 'De Doctrina Christiania,' book 2, cap. 25, also capp. 23 and 24. . . . ."

27. Albertus Magnus (A. D. from 1193 or 1205 to 1280) was Bishop of Ratisbon, famous for his great learning, the "Doctor Universalis;" his works fill twenty-one volumes and are generally on physical science, as then understood, including natural magic. He wrote "De omnibus et quibusdem aliis."

(i.e., the Planets [28]), shining stars amid numbers of others, all being confined within the zodiac and as it were within walls, it comes into my mind that this best and mightiest God determined from all eternity to work through secondary causes. And so He spread out the heavens, as the sacred prophet said, "As the parchment forming the book of the universe, the letters of which no man need fail to have."

Or to use the language of Ptolemy,[29] "The visages of this wise age are subject to the visages of the heavens, just as the celestial Serpent [30] dominates those on earth, and the celestial dragon [31] imposes his rule upon those on earth."

Moreover, the mechanism of this world was created in the best and most perfect order, as it would be indecorous (to think) that the Creator would leave to a mortal creature anything imperfect.

At once, then, shall I commit to writing the primeval order of the firmament, adopting the common opinion as well of theologians as of astronomers that the world was created at the vernal equinox, the sun being in Aries. And so in the inception of the world, the first degree of Cancer [32] was in the ascendant in which Jupiter is potent; then the

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28. The planets (literally, wanderers) were the seven celestial bodies that changed their places among the fixed stars. They were the Sun, the Moon, Saturn, Jupiter, Mars, Venus and Mercury. Of these, the three that were above the path of the Moon, namely Saturn, Jupiter and Mars, were the Superior Planets, and Venus and Mercury, the Inferior Planets. The words Superior and Inferior then indicated height above the plane of the central earth; they now mean the distance from the globe of the central sun, more or less than that of the earth.

29. This is Ptolemaeus Claudius, the celebrated astronomer, after whom the Ptolemean or Geocentric Theory of the Universe was called, though he was by no means its author but was considered only its clearest and most exhaustive exponent in ancient times. Little is known of him. He certainly observed in Alexandria in A.D. 139. It is quite uncertain whether the many works, astronomical and geographic, attributed to him came from his pen: sub judice lis est.

30. Scorpio in the heavens was the king and governor of all scorpions on the earth.

31. Draco governed all dragons on the earth.

32. This means that the first part of the zodiacal sign Cancer was in the Zenith and in the First House; on the eastern horizon, then, was Aries in the Tenth House, Capricornus in the Nadir, the Seventh House, and Libra on the western horizon in the Fourth House. The circuit of the heavens above and below the earth was divided into twelve Houses, the First being in the Zenith and counting westward; having the House, i.e., the position, of any zodiacal sign, the Houses of the others can easily be found. All this rubbish was taken seriously even by such scholars as Cardan and Fracastorius. Of the latter I have said: "The philosophy and science of the day included much we now know, or at least believe we know, to be groundless; but if Fracastorius paid much attention to astrology, as he certainly did, it was the fault of his times and not his own. The masters of science in those days—as witness, men like Cardan—were devout believers in that pseudo-science; and, in any case, it bore to astronomy much the same relation that alchemy did to chemistry. Moreover, it is said that in after

Tenth House holds the same degree. Aries, then the first degree of Capricornus, gets the Seventh House; finally the same degree of Libra claims for itself the angle of the earth (i.e., the horizon). And they call these four Houses (i.e., the First, Fourth, Seventh and Tenth Houses) the Cardinal or Angular Houses.

(Here follows a description of the signs of the zodiac and the Houses, which I do not translate. It is almost unintelligible to any one not acquainted with astrologic terminology, and is of no importance in the narrative. So far as understanding the story is concerned, it will be necessary only to remember the old rhyme, "The Twelve Signs of the Zodiac:"

> The Ram, the Bull, the Heavenly Twins,
> And next the Crab, and Lion shines,
> The Virgin and the Scales,
> The Scorpion, Archer and the Goat,
> The Man that bears the Watering-pot,
> And Fish with glittering tails.

The Latin names are: Aries, Taurus, Gemini, Cancer, Leo, Virgo, Libra, Scorpio, Sagittarius, Capricornus, Aquarius and Pisces.)

Now it is proper to tell the habitations of the wandering stars, in which they were created. Saturn was situated in his own proper home in Aquarius in the twenty-seventh degree of his own exaltation;[33] then Jupiter was in Pisces in the twenty-eighth degree of his glory; Mars in Scorpio in the twenty-eighth degree of his exaltation; the Sun in his own home; Aries in the twenty-eighth degree of his exaltation; Venus in Taurus, her own domicile, in the twenty-seventh degree of her glory; Mercury in Gemini, his home, in the fifteenth degree of his exaltation; the Moon in Taurus in the third degree of his exaltation; the Head of Draco in the third degree of Gemini, the Tail of Draco in Sagittarius in the third degree of his exaltation—at last he need flee no man. The

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life, Fracastorius' knowledge of Astrology stood him in good stead, as it brought him into favour with the Pope, Paul III. A general council of the Church had been called, which met at Trent in Germany; but the Pope and the Emperor, Charles V, became estranged, and the former decided that it would be better to remove the Council to an Italian City. He applied to Fracastorius, who consulted the stars, and 'did not fail to find there, the signs of a near-approaching contagious disease exactly in the City of Trent.' The Fathers, alarmed at this dire presage, decided to meet at Bologna, agreeably to the wish of His Holiness. 'This anecdote,' continues his biographer, 'is perhaps a fable fitted to the facts, for it is well known that authors frequently like to give an air of romance to history, the fable having charms more piquant than the simple truth. However that may be, it is certain that there was held at Bologna, the ninth session of the Council, April 21, 1547, to June 10, 1548" (Riddell: Hieronymus Fracastorius, Toronto, 1928, p. 2).

33. "Exaltation" is the same as "elevation," the term now employed with a different connotation.

Moon climbing over the head of Draco, was in conjunction (Latin, Coitus [34]) with Mercury in the sign Gemini and this was the first conjunction (coitus) of these two stars. Thereafter the Moon was with the other planets until she came to the Sun which was on the twenty-seventh day after her creation.

It is possible, if so desired, to describe the other signs of the heavens; but we will rest content with the above, which appears to be written down conjecturally by astronomers, as the calculation of them exceeds human powers unless those to whom it was given by divine revelation. For this was an uncertain number of years before the Flood, and there are no historical authors extant who wrote of these things. Consequently, I leave these to the examination and investigation of experts and apply my pen to the years of (our present) world.

¶ *Fifth Chapter, Concerning the Calculation of the Years Since the Beginning of the World and the Distinction of Ages, from What Comes the Knowledge of the Conjunction of the Planets, from Which This Said Disease Arose.*

Lest I should seem to lay my hands to knowledge alien to me, the profession of which would in no way increase my fame or satisfaction, nor as wholly inexperienced be placed in the list of barbarous and uncultured men, who think that everything will come to them in time, and give up their youth to vice—nor do they bring the learning of the liberal arts to the discussion of evil things, in respect of many of which even grave and learned men give their opinion to the unlearned public—as I pray that my discourse shall not in the least be such as theirs, I a little lad in Burckhausen cultivated the game of letters; but yesterday, the Gymnasium saw me, today am I entered in the School of Orators; thence issues a new publication written by a clearer light.

Come then, I protest, you should be ashamed to sadden florid age with either the allurements of venereal affairs or bestial inebriation. Rightly and well would you spend adolescence just begun by sparing no labors, no waking vigils, as much as possible with your passions and pestilent desire reined, thus contributing to quiet of mind and body as I. . . . Nor should you object to me saying that adolescence is eager to follow ambition; for not so much does ambition urge me on as devouring envy tortures you. Nor say as many do that I follow impious studies, in that astronomy, oratory and medicine lead youth astray. By your leave, I would say that you should be ashamed to be ignorant of

34. "Coire," to come together, gives "coitus," a coming together; the modern use of the word is, however, classical, though the smaller Latin dictionaries lack it as does Cicero; Ovid (Metamorphoses 7:709), Suetonius (Caligula, 25), Quintilian (8, 6, 24) and others have no hesitation in using it thus. The astrological meaning, "conjunction," is found; e.g., in Pliny (2, 9, 6, "luna morata in coitu Solis biduo"—the (new) moon remaining in conjunction with the sun, two days.

them although you may be in the highest grade of each regular faculty; that it rarely happens that the expert in minor things can attain the greater. And so all the arts have a certain common bond between each other and are all mutually united. But lest I should weary the reader by the tedium of what is to be read, I shall turn from the chatter of this kind to the matter in hand, on account of which I have impelled my pen to write.

If I were to speak of the years flowed by since the beginning of the world, I should usurp to myself the authority of the theologians, whose error if they stray from the truth would make me rave too; it will answer to note the distinct ages which the divine Augustine made the six days of the creation of the world.

The first age was as one day [35] from Adam to the Flood; the second followed to Abraham, not at all equal in time but in number of generations—they are considered to have ten each; the third from Abraham to David; the fourth from David to the transmigration to Babylon; the fifth from that time to the earthly birth of Christ; the seventh, the present generation, is not to be measured by any number of years, for which reason it is said, "It is not for you to know times and moments which the Father hath placed in his own power."[36]

Of these six ages, all writers of chronicles have treated and the Septuagist interpreters have made a calculation of the years; then Josephus, Berosus, Eusebius, Jerome and Beda,[37] who have no slight differences between them, the reason being plain, for they count the part of the whole incomplete years for whole years, fractions of years, days, months, hours, minutes, seconds, thirds, etc. So they have made to

35. II Peter 3:8: ". . . one day is with the Lord as a thousand years and a thousand years as one day;" or as the Vulgate has it, ". . . unus dies apud Dominum sicut mille anni, et mille anni sicut dies unus." This verse was one of those on which was based the theory that in the chronology of God, a day was a thousand years; consequently, when the seven days of the heavenly week, 7,000 years, were completed, the world would come to an end. It was also responsible in great part for the fear that lay as a nightmare on all Christendom on the approach of the year A.D. 1000, as it was then thought that the "great day of the Lord" would be accomplished. Millenarians are still to be found.

36. Matthew 24:36 reads: "But of that day and hour knoweth no man, no, not the angels of heaven, but my Father only" (Mark 13:32). But this is Acts 1:7: ". . . It is not for you to know the times or the seasons, which the Father hath put in his own power."

37. Josephus (A.D. 37-95) was the Jewish writer a little after the time of Christ. In many things he contradicted Berosus of Babylon, of the third century B.C., who was much like a medieval chronicle, believing every traditional story. Eusebius (A.D. 264-349) was the Christian historian surnamed Pamphili, and Bishop of Caesarea. Jerome, St. Eusebius Hieronymus (A.D. 340-420) was a Father of the Latin Church and Secretary to Pope Damasus. Beda (A.D. 673-735) was a Catholic priest generally known as the "Venerable Bede," an English theological writer. These were all well known authors.

elapse from the beginning of the world to Noah's Flood, 2,242 years; then from the Flood to the birth of Abraham elapsed 942 years; from the birth of Abraham to King David was 940 years; and again from David to the transmigration to Babylon elapsed 485 years; finally from the transmigration to Babylon to Christ passed 590 years. Adding all these years together there result from Adam to Christ 5,199 years. I pass over the more exact calculation of Alfonsus;[38] the foregoing calculation is:

2242
942
940
485
590

5199 [39]

Now let us turn our discourse to the maximum conjunctions of Saturn and Jupiter which are followed by the greater change in things.

¶ *Sixth Chapter of the Maximum Conjunctions of Saturn and Jupiter Which Have Occurred from the Beginning of the World and Which the Greatest Changes Followed.*

The high-thundering Father,[40] forming the stars from the beginning, committed to them the care of the lower chambers, like a paterfamilias. About to go away, he carefully transferred to them, his familiar agents, the care of domestic affairs that they might govern and direct the same benignantly as their salutary influence became effective, so that every creature who inhabits this world might have care and provision made for him; he made Mars the judge and Saturn the executor of justice;

38. Alfonsus is Alfonso (or Alphonso) X, King of Aragon, surnamed "The Wise" and "The Astronomer" (A.D. 1221-1284). He prepared a set of astronomical tables known as the "Alphonsine Tables," which are still occasionally consulted (Ticknor: Spanish Literature, vol. 1, p. 41).

39. The chronology of Grünpeck does not agree with that of Archbishop Ussher which, until recently, was somewhat generally accepted by ecclesiastics and others. The recent attacks on the literal accuracy of the Bible have shaken the faith of many persons in any chronology based on it. The traditional chronology of Ussher was:

Creation,	4004 B.C.	lapse of
The Flood	2352	1652
Birth of Abraham	1948	404
Birth of David	1055	893
Exile to Babylon	599	456
Nativity	0	599
		4004 years

40. Medieval writers had the habit of transferring to Jehovah the titles and attributes of Zeus or Jupiter. Here is the expression "Altitonans Pater" as in Cicero, Carm. Div. 1, 12; the Roman applied the words to Jove.

the other planets, assistant judges and quasi mediators who might mitigate the wrath of the severe judge; thence he provided that marvelous alterations in this earth should follow from their conjunctions and configurations, particularly those of the three superior plants,[28] Saturn, Jupiter and Mars. By reason of their slow motion, their conjunction is quadruplex; the maximum is that of the three named planets which indicates the greatest things, things most to be wondered at. The conjunction of Saturn and Jupiter simply is called maximum when in the beginning of Aries, because of the magnitude of the effects which it indicates; and this conjunction is divided into four kinds.

Every twenty years Saturn and Jupiter are in conjunction, and this is called the Minor Conjunction. Since Jupiter completes his course in twelve years, and Saturn in twenty, it happens that in twenty years they come together in the Ninth Sign from that of the previous conjunction; and after another twenty years, in the Fifth Sign from the first, and after the third twenty years, again in the First Sign. And this conjunction which occurs every sixty years they are accustomed to call the Great Conjunction; and it is said to be often ominous for great kings and powers and to occasion scarcity of crops and the appearance of oracles.[41] Then as often as they are in triple conjunction,[42] when they migrate to another part of the heavens and come together, it is called the Major Conjunction, which takes place every twenty and forty years and indicates changes in other regions. But when this migration is from one triple to another as from the Heel of Cancer to the First of Aries, then it is called the Maximum Conjunction (Congressus Maximus) produced by the revolution of Saturn in thirty-two turns; this indicates tumults in impious kingdoms, fiery appearances in the air, floods, earthquakes and, lastly, scarcity of crops.

The first maximum conjunction of Saturn and Jupiter then was in the First of Aries, according to the common view of calculators, but not precisely and adequately considered; it was in the three hundred and thirtieth year from the beginning of the world, which is confirmed by the minor conjunctions which happened from the beginning of the world to this clearly rare maximum conjunction which requires three hundred and thirty years.

By adding to the said maximum conjunction 960 years, comes the second which was in the 1,280th year of the world which, as has been said, always happens in 960 years. The first being granted, all the rest follow by always adding 960 years.

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41. Fracastorius tells of a wholly mythical prophet Sirenis who appeared and warned of the approach of "an unaccustomed deluge" (Riddell: Hieromymus Fracastorius, pp. 4 and 55).

42. The three Superior Planets in conjunction.

The third maximum conjunction of Saturn and Jupiter in the First Aries was in the 2,240th year of the world; the fourth in the 3,200th; the fifth in the 4,160th (1,918 years from the Flood [43]). The sixth was in the 5,120th year of the world (2,878 from the Flood) the seventh in the 6,080th (3,838 from the Flood) or approximately 735 years after the Incarnation of Christ. So in all, during the existence of the earth, there have been seven maximum conjunctions.

When these occurred, always mighty and strange phenomena, portents, terrible wickedness accompanied them, of which all the histories are full; from all historical writings we see the truth of this.

The eighth maximum conjunction in Aries will (God willing) occur in the 7,040th year of the world, 4,798 years from the Flood, and 1,693 years, or thereabouts, from the Incarnation of Christ—this is for the future and as the Highest and Mightiest God knoweth. He is to be prayed to that he may preserve us, His servants, here in this world in health and after death in eternal life and joy of beatitude.

I have thought well to mention these maximum conjunctions for this reason: that is, that the more easily will the origin be explained of this most acute disease which I shall endeavor here to investigate in respect of astronomical causes.

Now we are to direct our discussion to the major conjunctions:

¶ *Seventh Chapter Concerning the Major Conjunctions of the Planets Which Are the Principal Causes of This Inundation Which They Call Mala Franzos.*

The conjunction of the maleficent planets may be the cause of all sickness, either slight or severe. For Saturn, which is cold and dry, has an atrabiliary constitution [44] and generates and increases the black bile;

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43. The computation in footnote 37 and in the foregoing text, would make the time of the flood 2240 A.M., and that of the Nativity 5345 A.M.; i. e., the Flood would occur in 3005 B. C. The computation a little later in the text precisely corresponds with this: It also makes the time of the Flood 3005 B. C. (4798 less 1693).

44. Ratio or Constitution: Saturn was of a Black Bile Constitution; he created and increased it and was sovereign of the Melancholics: According to Galen, the melancholic humor or Black Bile had the same connection with the spleen that the Yellow Bile had with the Liver. See the amusing chapter in which he deals without gloves with Asclepiades and his heretical, "nonsensical," absurd theory that the gall-duct secretes the Yellow Bile. It is a curious fact that while this black bile was considered wholly natural, the thought was till quite lately never very remote, that it was corrupt and dangerous to health. Indeed, the Greek physicians not infrequently spoke of it as diseased; one of our own old writers says that it "is sumwhat stynking & is clepid melancoli." (See Galen: On the Natural Functions, book 1, cap. 13, Kühn's ed. by George Helmreich, Trübner, Leipsic, 1893, p. 40.) Mars, the Fiery God, had a Ratio of the Fiery Bile, hot and dry; all salts were of this nature and they claimed the House of Mars as their own. Worse, however, Mars was the chief creator of the morbus gallicus.

wherefore the Spleen is in its House. Mars, again, being hot and dry, looks to the bile (i. e., the yellow bile, a reality, now as then). This it creates and increases, and every Salt claims for itself his House. It is for this reason that Mars is called the Exciter of Wars. In a conjunction, then, each one moderates his malignity lest he be unable to exercise it. Saturn is held to be the author of lingering diseases arising from the black bile. Mars, on the other hand, is the principle of the acutest diseases arising from the inextinguishable flame of the bile—whence it is deduced that the origin of this French disease is peculiar to him, as it is seen to be generated by corrupt humors which are considered as being born to him, from the configuration of the conjugation and the dominance of the mastery.[45] The enumeration of the major conjunctions will illustrate this and how it comes about. For I am not at all ignorant of the conjugations of Saturn and Jupiter between two maximum conjunctions. At the least, three major conjunctions occur in 240 years, and very often minor conjunctions of Saturn and Mars in 30. And, again, many others occur, of which Ptolemy speaks in his "Centiloquium"[46] in the fifty-first sentence—"Lest you should forget the 120 conjunctions which occurred of the planets, as concerning them is the most complete knowledge in this world—between any two maximum conjunctions there is at least one revolution of the Orb, that is, of the eight planets in 640 years, and even more revolutions of the Great Orb." In 320 years, moreover, there are many revolutions of Saturn which, of course, have not all the same significance in the great changes of kingdoms and great sicknesses, with other tremendous effects, according to the teaching of the best astronomers. For which reason, when many of these conjunctions occur in the same year, various marvels follow which are for the stupefaction and wonder of every mortal. The necessary years having elapsed, there occurred a dire conjunction of Saturn and Jupiter which was the cause of the Mala de Franzos, which has made such a fearful raid; and this cause may be exhibited in a few words.

¶ *Eighth Chapter Concerning the First Cause of This Pestilentialis Scorra or Mala de Franzos Flowing from the Celestial Constellation.*

In the recent Ides of November,[47] I tried to cross a certain Egyptian stream,[48] flowing fast, as the saying is, from the midst of the fount of

45. "Mastery," Dominance, the superior power of a planet in certain positions, when there it was prepotent or dominant.

46. The "Centiloquium" of Ptolemy (footnote 29) is a companion to his "Tetrabiblon" or "Quadripartitum de Apostelesmatibus et Judiciis Astrorum" and is itself called "Fructus Librorum Suorum." It has been attributed to Hermes Trismergistus, but improperly; an English translation, Ptolemy's "Quadripartite" appeared in 1701. The book has frequently been reprinted in Greek and Latin.

47. In the Roman method of stating dates (I got into great trouble with my old Latin professor by calling it a silly way) each month had Calends, Nones and

the philosophers. For both assiduously going with philosophers and physicians and consulting the wisest men, and by sedulous inquiry and most careful thought as to what was the cause of this evil, which so fearfully oppresses, inflames, tortures, irritates and heats the bodies of men, I was castigated by the too sudoriferous toil, even to the loss of sleep, when every one of them confessed that he was ignorant of the cause of this thing; and therefore I made up my mind to enter the Gymnasia of the Egyptians; when I had cast my eyes on the crystalline waves of this most beautiful stream, and had seen older men recreating themselves therein, who, on their part, looked at me most amicably, I sat down and entered into converse with them. Anxious to know what they were doing, one of them who was present whispered into my right ear that they were Hippocrates, Galen, Avicenna, Plato, Aristotle and Ptolemy; he mentioned also numerous other astrologers who were engaged in the contemplation of natural and celestial things. Amongst other things, they proceeded to discuss at length the cause of this Mala de Franzos which some asserted was the Planta Noctis, some Mentagora and others a kind of Lepra,[49] and to be cured by the same remedies as

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Ides; Calends being the first day of every month, Nones the fifth and Ides the thirteenth (except in March, May, July and October, when they were the seventh and the fifteenth). The days were counted back from these: Between Calends and Nones there were days of the Nones of that month, then to Ides there were days of the Ides of that month, and then to Calends, days of the Calends of the next month. The fourth of the Nones of January (A. D. IV, Non. Jan.) was January 2, the Nones being counted one; so that the sixth of the Ides of January (A. D. VI, Id. Jan.) was January 8, but January 14 was the nineteenth of the Calends of February (A. D. XIX, Kal. Feb.).

48. The story about the Egyptian Stream is pure fiction; what is meant is that he consulted the ancient authors.

49. Fracastorius in his "De Contagionibus, morbisque Contagiosis et corum Curatio libri tres," cap. 12, said: "When this new disease appeared for the first time, at once a great controversy arose among medical men, some contending that there was no mention of it by the ancients, others on the contrary contending that there was; some of these thinking it was Elephantiasis, others what was called by the Arabs, Safati, by others, Lichenas. The first to solve the difficulty was Nicholas Leonicenus, a man most profoundly learned and of great weight, who clearly showed that it was none of these, but that the disease had not been mentioned among the ancients: Although, indeed, some later writers, rather obstinately than reasonably, disagreed with so great an authority and asserted it to be simply Elephantiasis" (Riddell: Hieronymus Fracastorius, p. 10). In the same work, cap. 13, he says: "Elephantia or Elephantiasis is called by the Greek Elephas. Some of the later writers believed Elephantia to be the same as Syphilis, because seeing the ancient writers dealing separately with Lepra and Elephantia, and thinking their Lepra to be the same as what is commonly called Lepra, they did not know what Elephantia could be but Syphilis. But what the ancients call Lepra is not that commonly so named, but a far different and less serious disease considered by them along with Psora, that is, Scabies. It is really a sort of halfway house to Elephantia, which itself, properly speaking, is the disease which is

these diseases were cured by; some said that only dry bodies were affected by it, and consequently it most frequently attacked the French; especially from the coldness of Saturn as often as there was an exit from his own house and a migration to the domicile of Jupiter; and this was wont to happen as often as Jupiter has driven out the leavings of the malignant old Saturn [50]—generally in forty years. Finally, part of them affirmed, and part denied, this kind of disease might even more frequently attack dryer bodies than those of the other Gauls; and, for that reason, it had claimed for itself the name of the French people, for it was wont to be called Mala de Franzos (i. e., disease of the French, morbus gallicus), and it accepted the name imposed on it by Germans, Italians, British, English, Poles and other peoples. But from the French people, which branded itself with this name as its peculiar and perpetual mark—a brand which will never pass away—it has by this time crept not only through Latium but also through Germany, Poland, Bohemia, Thrace and Britain, and ultimately it has occupied all the four cardinal points of the world, where it was never heard of in olden times. They went deep into the prior cause of it: in what way it could happen that this disease could be transmitted from the French to so many different peoples, as they so often suffered from this French-born disease, when they never passed the walls of their city, since they were forbidden to seek other countries and were not, as they are now, scattered throughout the regions of the globe; so they did not transmit this disease to other men which now like an arrow twists from one to another. For this reason, the wisest astronomers, investigating most carefully the hidden cause of this sickness, advance many things worthy of being put on paper; this, however, is not the place to review their theories. It will be sufficient to say that France is governed by Jupiter, Saturn is over England and Mars governs Germany. When, at length, as was natural to the ardor of avid youth, I was unable to find and express the proper words, I broke out into this "conjunction of the planets." In the course of a few years, it was shown to me by a single individual, proving it by various arguments, that this very thing was the most likely cause of this disease. In the meantime, they were forced to go away, having been sent from the hereafter by Jupiter himself to communicate to men for their safety what they had brought from the highest heavens. They

called Lepra not by the people but by the recent Latin as well as Arabian physicians. Elephantiasis, Pliny in the twenty-sixth Book of his Naturalis Hisoria tells us, was unknown in Italy until the time of Pompey the Great, and like Lenticulae it begins at the nose" (Riddell: Hieronymus Fracastorius, p. 20).

50. Old Saturn always bore a grudge against his son Jupiter for wresting his throne from him, although he did not treat him as he had done his own father Uranus. Saturn was always malignant and atrabilious and was the father of the atrabilious.

gave me a signed document, which I was to disseminate throughout the earth, and then vanished from my sight with a mighty groan; I, stupefied, returned to the city, and set out the cause of this disease, which here follows:

¶ *Ninth Chapter Concerning the Mala Franzos, Which Came from the Major Conjunction of the Two Planets, Saturn and Jupiter, and from the Emission of Rays from the Sun.*

In this great turmoil, I cogitated long and deeply with myself of the cause of the varied differentia of this portent, horrible and most terrifying to all men, heretofore unheard of, unseen and wholly unknown, and what was best to be done. Should I be the subject of popular blame, or should I restrain my pen from all office of writing? When I was thus hesitating, there chanced to come into my mind the error existent in the minds of all men, so that the bitterest criticism of everything was of the writings of the most distinguished men, issued unappreciated to the ignorant public, which nevertheless they had published with the best intentions. Accordingly, if they do not consider this work of mine objectionable, I should be liable to censure since men most dignified by all virtue, wisdom and learning have least of all shunned the impudent tongue of detractors.

Valerius [51] is a witness who says that there can be no felicity so great that it will escape the teeth of malignity. Consequently if my reputation is torn in pieces and destroyed by all kinds of ignominy, it is no shame to have written, but it would be to have spent youth in laziness and inert luxury without letters.

I beg that you will show yourself a just judge, you who read this, the first publication of my youth, and if deceived by human failings, I am led into any error, you will correct it in your courtesy, lest you should deprive me of the hope of writing more important things in the future.

Receive, then, the following plain account of the cause of this Mala de Franzos.

There happened in the one thousand four hundred and eighty-fourth year, a terrifying conjunction of Saturn and Jupiter, on November 25, in the sixth hour p. m., the first degree of Cancer just above the horizon; this horrendous Conjunction was in the sign of most unlucky Scorpio, the House of Mars, in its twenty-third degree. This stern and malevolent Saturn, by the elevation of his eccentric and the altitude and height of his circular latitude toward the North, oppressed benignant Jupiter. And Mars asserted himself as sole governor of the conjunc-

51. Probably this is Julius Valerius who was the putative author of the "Life of Alexander of Macedon" in which many of the statements are clearly fabulous, but then he is said to have been an African.

tion, being in his own palace and set in his royal Sign and proper House. Accordingly, from the combat of Saturn and Mars, benignant Jupiter was unable to bring saving aid to his own subjects and children.

Then in the following year, 85, on March 26, happened that terrible and dire eclipse of the sun, the first witness of the significance of this conjunction, and brought on its malignant and worse effects. Nor was this malice here terminated, nor was there an end of it until it migrated to another citadel of the stars.

This fearful conjunction was followed by infinite disturbances: now pestilential floods which are still raging; now, tempests or wars; now, again, unhappy mortals are oppressed by the fiercest whirlwinds of famine. And to give a climax, this pestilential filth has come upon humanity, that is, the Mala de Franzos, which in fact this conjunction caused to pass from the French to the Germans, and thence into many other regions. For it is known that Jupiter dominates Gaul or France, who is hot and wet and forms blood for himself from the humors, his domicile being the liver, whence he generates and increases the blood and strengthens the vital power—for life is conserved in the hot and wet. For this reason, the French by nature enjoy the best constitution in the body, yet they more easily fall into sicknesses and become seriously ill by reason of the abundance of vital heat [52] and the reflection of their bodies, and saturation and abundance of humors are more liable to immediate putrefaction.

And as in the said conjunction of Saturn and Jupiter, the kindly and salutary Jupiter is held down by the very ferocious Saturn,[53] and by the

52. "Calor naturalis" or "calidum imatum." "Galen taught that the innate heat (emphuton thermon) was a substance composed of the semen and menses and was the origin of the being, becoming relatively less as the being increased in size; accordingly, the infant had more innate heat than the adult. In the body there are, according to him, two kinds of animal heat: one which is perceptible to our senses, the 'temperature (in our modern sense of the word),' and the other which goes back to the very beginning of its life and which is the cause of the former. Lycus, on the contrary, held that there was but one, namely, the former. E. Littré, in his admirable edition of the 'Aphorisms of Hippocrates,' Paris, 1844, pp. 52 and 59, discusses the theory of the Father of Medicine; and comes to the conclusion that Galen has not correctly interpreted the language of Hippocrates, but that Hippocrates, while he considered 'innate heat' different from animal heat or temperature, looked on it as the result, not the cause of growth. I confess that the reasoning on this subject of Littré is not so convincing as usual, but I remember, Ne sutor ultra crepidam, and content myself with quoting the Aphorism, 1, 14, 'The growing have the most innate heat, therefore they need the most nourishment, otherwise the body fails; in the old the heat is small (oligon) and consequently, they require little fuel; they would be extinguished by much. For the same reason, fevers are not so acute (oxees) in the old, because the body is cold" (Riddell: Hieronymus Fracastorius, p. 24).

53. Saturn, of course, never lost his rage at the way he was treated by his son Jupiter (footnote 47).

interference of Mars who seizes as his own the impious governance of this conjunction; he (Jupiter) lies prostrate. Follows, then, injury to heat and wet; Saturn, of course brings into the body the black bile [54] which he generates and increases; because he himself is cold and dry, inimical to nature, he hands over the newly formed humors to corruption. Thereafter Mars mingles in his own mixture by adding to the former evil his bile, more burning than the flames of fire; and thus, at length, these health-bearing humors leave their original nature, the citadel of life being filled full with the death-bearing humidities of Saturn and Mars, since so great, fetid, filthy, gross and sordid a mass is gathered together that human nature itself shrinks from it.

Saturn has the quality [55] of fetor, which is plainly the principle of sordid and most fetid things; the primary cause is clearly the black bile which generates this impurity; the second is the bile which increases the same and fires these mingled humidities, for Mars is the parent of all inflammation. Consequently, internal putor is plainly to be observed in men suffering from this disease, Mala de Franzos; consuming like fire, inflaming, incinerating and torturing, it is so oppressive that, sad to say, many long for death to relieve their pain.

Nature strives to expel by force this most sordid material and sends it down to the pudenda where the veins are collected, for the sign of Scorpio in which this conjunction is formed has the dominion of this part of the body.[56]

But expulsion is not there perfected, and therefore it is diffused into other and nobler parts of the body by the corrupt blood flowing thither. Afterward, this disease went to the Italians who were seen to participate with the French and then to the Germans through this mastery of the conjunction by Mars.

Lastly it flowed to the English and other minions of Saturn. Nor would I think that any man can escape it. All the children of Jupiter are to be harassed by the great threat of this sickness, at the origin of which this conjunction was in the ascendant in this sign.

Another cause of this often mentioned disease is the revolution of Saturn which was completed in the eighty-ninth year and never passes away without some singular change. Now let us proceed to the remedies.

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54. One of the four humors of the body, which were: sanguis, blood; phlegma, phlegm or rheum; bils, chole, yellow bile, atra bile, melanchole, black bile.

55. Peculiarity or natural characteristic; e. g., "the quality of mercy is not strained."

56. Every one not in his infancy must remember the picture of the human body and the signs governing the different parts of it which decorated the almanac, taken bodily from the old astrological works. Scorpio was the governor of "the Reins."

¶ *Tenth Chapter, Concerning the Remedies Against the Arrows of This Pestiferous Disease or Filth of the French.*

From the time these arrows break into man, his defenses being destroyed by the acuity of the black bile and the inflammation of the bile, they are seen to twist their way from one to another just like an epidemic disease; consequently it has an affinity with the plague itself.

The makers of shields,[57] therefore, should be consulted.

You will carefully remain away, having left behind you a house in which those afflicted with the Scorra are lying, and keep before you a sky clear and pure; you will everywhere sedulously abstain from the society of these men, for these darts infect the air which, being frequently infected, infects itself. It is worth while at this time to avoid public lavatories,[58] as the pores are open. Afterward, indeed, one may feel the breezes, roused in some different mental exercise.[59] For this purpose let him bring out Cytherean melodies, harp with Pythagorean art, attend convivial gatherings, Orpheus with Amphion, Venus with Ceres. Let not Bacchus, however, fill the bowl too liberally. Let there be pleasant discourse of the loftiest things which will not direct the thought to this sickness.

Let the room be fumigated by live coals sprinkled with myrrh and white frankincense or grains of juniper; moreover, let the dishes be

57. Prophylactics, Alexipharmics.

58. Baths as well as latrines.

59. With this may well be compared the counsel of Fracastorius in his celebrated poem, book 2: "In the first place, I advise you not to accustom yourself to every climate. Avoid where the wind is from the south or from the mire, and is heavy with the sweat of a filthy swamp. I prefer the open plain, the wide fields; the airs and gentle zephyrs delight in sunny hills, and the air driven in from the north. Here, be there for you—so I order—no rest, no ease; make no delay; tireless, keep wild boars on the move with continuous hunting, with continuous hunting stir up the bears; nor let it be a toil to you, overcoming in your course the difficulties of the lofty mountain, to turn the speedy stag into the valleys and to encircle the elevated glades with the long hunting net. I have often seen a sick man who has cured everything by sweats and has left the disease behind in the lofty forests. But do not think it disgraceful to put hand to the plow and to trace the long furrow with the curving plowshare, or to break the soil and hard sods with the mattock and to destroy the lofty oak with the axe and to dig up from its lowest roots the high mountain ash. You can exercise even at home—come, pitch for me the little ball in the morning, pitch in the evening—and you can procure sweat in dance, in the strenuous palaestra. Conquer the evil; be not deceived as to what will follow perpetual desire of inactive ease and bed. Trust you not in the bed, trust you not in sleep, for by these is the evil nourished; it is deceptive under the image of placid peace and draws nourishment from sweet quiet. Then, too, in the meantime avoid all that will sadden the mind; order away cares and trembling fear, vengeful anger, and every mind addicted to the pursuit of Minerva. But let songs delight you, and the dances of youths—boys and girls."

savored with vinegar or verjuice;[60] let the air be rectified as in the Plague; always the first thing in the morning and also in the evening let a fire be kindled for many days; as Galen, in the pamphlet he wrote concerning the advantages of incense,[61] recommends this purification when he says: "Wherefore, I praise that most marvelous man Hippocrates who treated the Plague not otherwise than by changing the air and providing against the infected air being drawn in by respiration; he ordered a fire to be built in every city, not fed with the usual material alone, but he recommended flowers and garlands to be the food of the fire and on top pouring in the fattest of pigments and those having good odors."

I praise, too, the thought of Anthonius Cermisonus[62] in recommending the streets to be cleaned of dung and other matter that may infect the air.

The special rectification of the air is to be done in this way: It is best in the morning and evening, when men are willing to be still; let them light a little fire which they will feed with frankincense, wood of aloes, cloves, mastic, cypress and other things of that kind. A dwelling is to be selected in summer in sloping and lower places, removed from celestial impress, the windows in the north and east; and that is the best outlook.

Finally a remedy is highly necessary that will preserve men from this pestilential filth; it is a rectification of their bodies. And this is of two kinds: in one method by a due regimen of life, and in the other by a due evacuation.

The prescribed regimen is this:[63] All kinds of fish are to be avoided, so also, sweet fruits and similarly humid meats as of pigs, lambs,

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60. The word is "agresta." It is not found in classical Latin, at least not in this sense. It owed its origin in medieval Latin to a translation of the Italian "Agresto," Acid, and became too firmly established to give way to the classical terminology.

61. This is probably the spurious work wrongly attributed to Galen: "De Virtute Centaureae."

62. Antonio Cermisone of Padua, a professor at Paris, who died in 1441. He was the author of "Consilia Medica contra omnes fere Aegritudines a Capite usque ad Pedes"—an early Dr. Buchan.

63. Compare Fracastorius: "The greatest care is to be taken as to food; in nothing are you to be more prudent and observant. In the first place, I remove far away all fish whether fed in rivers or swamps or limpid lakes. There are, indeed, some the use of which when necessary it is possible to concede more freely: in all these, the flesh is white, not hard and tough, they struggle amidst rocks and the adverse wave of rivers and sea—such as Phycides which swim in the sea and rutilate through the waves, auratae, gobii and percae, lovers of the rocks—such as the scarus which at the mouth of the rivers ruminates alone amid the herbs consumed. Nor would I recommend birds which love to feed in swamps or in mighty rivers or to seek food in the liquid waves. For you, the fat duck, the too crude goose is forbidden and rather let it watchful save the Capitol: The quail sluggish

beavers and all kinds of aquatic birds. The following meats may be used: pullets, young barndoor fowl, calves, kids, caprioli, thrushes, partridges, pheasants and small Alpine birds, particularly when they are obtained in the open plains. These meats should properly be eaten with vinegar or verjuice or juice of lemons, pomegranates or oranges. For this purpose, really good vinegar is recommended rather than acrid substances which are not so good a preservative from corruption, nor do they extinguish the inflammation of the humors and spirits.[64] After these articles of food, better roasted than boiled, may come lentils prepared with vinegar, portulaca and lettuce, also prepared with vinegar. The drink should be good wine not pure or sweet but diluted, or else water mixed with vinegar or agresta, or pomegranate juice.[65] Similarly

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with burdensome fat is forbidden, too. Shun you soft milk, shun you the abdominal viscera of the fat pig—ah! shun the back of the pig and eat not of wild boar hams, however many wild boars you slay in the hunt. Let not the raw cucumber or truffles take you captive, nor satisfy hunger with artichoke or salacious onions. Nor am I pleased with the love of milk or the use of vinegar, or the foaming cup sparkling with pure wine such as the Cyrnean hills and the Falernian fields and Pucinean land send out, or such as the Rhetic grape with small raceme from our hills—rather be content with the Sabine and those which the thinner earth brings forth and the Naiads temper with much water. And if food from the garden, the food of the gods, be to your mind and simple vegetables and unpurchased pleasure, let not the green mints be absent, not the pleasant sisymbria and the intyba and sonchus, flowering through all the winter: and let sium, even delighting in river waters, and sweet thymbra and odoriferous calamint and joyous meliphylla and bugloss be plucked from an irrigated garden, and wild erucula in whole handfuls and olus and rumex and the seeds of the salty crithmus. The very bushes will bear lupus—gather thence the first asparagus, gather thence asparagus of the vine, before it has unfolded its branches and has not as yet woven its shade and commanded its clusters to hang green" (Riddell: Hieronymus Fracastorius, p. 60).

64. "Spirits" were almost as important as humors. "Natural spirits" were formed in the liver, sent through the veins to the heart where they were elaborated into "vital spirits," then through the arteries to the brain where they become "animal spirits" sent through the body through the medulla and the nerves.

65. Fracastorius, in his "Prose Work" (cap. 10), said: "The food is to be selected and prepared with great care, and I do not advise a restricted or a crapulous manner of living at first. Speaking in general terms, there should be avoided everything putrescible, hard to digest, viscous, such things as are of poor nourishment, such as consume what is sweet in the blood; and for this reason, milk and eggs and fruit and all kinds of legumina and all fattened meat, both swine and bovine flesh, and also fish and everything of that kind are to be avoided. Since it is often necessary to use fish, the least harmful are Menae, Erythrini (which the Venetians call Arbores), Cuculi (which they call Lucernae), Scari, Percae, Merulae, Turdi, Aselli, Auratae, Phycides; also from the rivers and lakes what are called Temali and Strigili and Lucii and Cavacini and Barbuli and Sardellae and Carpii. Among quadrupeds, discarding the feet, head, livers and intestines, the following are proper: Headi, Vituli, Hinuli, Lepusculi and also

they recommend a water of mixed acetous syrup. This closes the first purification of the body.

Then follows rectification by evacuation. Certain medicines are to be exhibited at these times to evacuate the body from a multitude of humors: some alteratives of the body, preserving the humors from corruption and poisoning (venenositas).

Evacuants are of two kinds: One of them evacuates sensibly, such as phlebotomy, purgatives, gargarisms and the like; some insensibly, such as massage and flesh-brushing.[66]

So far as the first kind is concerned, the advice of those skilled in the art is that sanguineous bodies, hot and wet, which are of vivid[67] heat and especially the young and those who make frequent use of flesh-meats and wine should employ phlebotomy, and more or less according to the excess of repletion or of blood and the age of the parties, as such bodies are in greater peril since their humors are more open to putrefaction.

And so, more frequently, they have recourse to evacuation by drugs, using these pills:

> Take of juice of Aloes two parts
> Of Crocus and Myrrh each one part
> Mix in with a little well smelling
> White Wine and make into Pills.

Let the robust and full-bodied take 1 drachm, and the less full bodied and easily moved, half a drachm. These pills evacuate extraneous humidities and preserve the good humors from putrefaction.

The superfluities being removed from the first and second digestions,[68] three or four sternutations are to be provoked with Veretrum, pyrethrum and cubebs, half a drachm of each and well mixed. Then let gargarisms be prepared with cold water and vinegar mixed: rose-

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Pulli gallinacei, Phasiani, both kinds of Perdix, that is, both those commonly called by us Quaternix and those called Perdix, also Turdi and Merulae, Attagenes, Hortulani, Galeritae, Ficedulae and small woodbirds and the rest which it is impossible to name. Do not let the wine be generous, but rather thin and white; and he who likes to use honey-water, will not make a mistake" (Riddell: Hieronymus Fracastorius, p. 27).

66. "Fricationes, pectinationes," literally, rubbings and combings (from "pecten," a comb).

67. "Vivid" is "live," "strong."

68. In medieval physiology generally, the first "concoction" or "digestion" was in the stomach, the second in the intestines and the third in the liver. Here the allusion is to the removal of "superfluities" from the stomach and intestines by purgatives such as aloes, still employed for that purpose.

water mixed with a little vinegar and camphor drawn through the nostrils.[69]

Insensible purgation, on the other hand, is massage which should be done all over the body particularly on the back and arms before rising from bed. Flesh-brushing comes along after they are convalescent and the superfluities are removed.

So much for alterative and evacuant medicines.

On the other hand, medicines that are alterative and preservative from putrefaction are Theriaca,[70] Antidote of Andromachus; and

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69. The learning as to sternutatories is almost forgotten. "Veretrum" is a misprint for "Veratrum," true hellebore; "Pyrethrum" is not our Chrysanthemum (Leucanthemum) Parthenium, Feverfew, but the Anthemis pyrethrum or Achillea ptarmica, pellitory. Old Radclifle recommended sternutatories for hiccup.

70. Theriaca: "Triacle," treacle, from "theriacum," an antidote to the poison of "ther" or "therion," the Greek for an animal, often a snake. Nero's physician, Andromachus, had a wonderful prescription which he celebrated in Greek elegiacs; his Theriaca was made of vipers' flesh, many plants and honey, and was the most celebrated "Theriaca"; his son of the same name had about twenty-four remedies for earache, many for toothache and bleeding, and was a pharmacist of renown. Servilius Democrates, a Greek physician who lived and practiced at Rome in the first part of the first century after Christ, wrote his prescriptions in iambic verse and they ranged from antidotes through malagmata (emollient plasters) to tooth powders. The name Mithridate was given to the medicine as being based on the prophylactic against poison used by Mithridates VI, King of Epirus. Every physician of note made his own improvement. Matthiolus (Pietro Andrew Mattioli of Florence, 1501-1577) put 120 ingredients into his special preparation. Mithridatium (-um, -e) was an antidote against poison, said to be due originally to Mithridates, King of Epirus. In an article, "Medical Theory and Practice of an Eighteenth Century Doctor of Divinity" (New York M. J., Sept. 27, 1919), I said: "I had written a full note on this remedy, but finding the following in a popular magazine, I copy it as sufficiently full and accurate: 'Mithridatium was the name of the great antidote of Roman pharmacy. It had from forty to fifty vegetable ingredients, few of which had any real medicinal value except opium; and these drugs were blended with honey. It remained for Nero's physician, Andromachus, to put the finishing touches to this wonderful compound. Andromachus added vipers' flesh to the formula, and called his new compound Theriaca. He wrote many verses dedicated to Nero, describing this medicine, and claiming virtues for it. . . . Evidently he believed that he had created in this one compound a veritable pharmaceutical monopoly. Galen, one of the fathers of medicine, went even further. He recommended it as a cure for all poisons, bites, headaches, vertigo, deafness, epilepsy, apoplexy, dimness of sight, loss of voice, asthma, coughs, spitting of blood, tightness of breath, colic, the iliac passion (appendicitis), jaundice, hardening of the spleen, stone, fevers, dropsy, leprosy, melancholy, all pestilences, etc. As Galen's writings dominated medical thought for one thousand five hundred years, it is not surprising that this advertisement made Mithridatium, or Theriaca, a valued remedy. Every physician of note for centuries afterwards claimed some improvement of the original formula.' It was called Mithridate (or Mithridatium) from being supposed to be based upon the medicines which Mithridates VI, the celebrated King of Epirus, took as a prophylactic against poison. Some of the modifications or improvements of this original

finally, let an unguent be applied to a man suffering with this Mala de Franzos, prepared after this formula:

Take of wax 2 ounces,
Of litharge of gold and silver, each 1½ drachm
Of Olibanum and Mastich each 1 drachm
Of pine resin 3 drachms
Of burnt alum 2 ounces.
Of mercury ½ ounce
Juice of lemons 1½ ounces
Of white wax and olive oil q.s.

Then make a gargarism as follows:

Take of choice rosated honey 2 ounces
Of Diamoron [71] 1 ounce
Of rosated waters, and of the smaller flowers of the main stalk of the plantago, each 2 ounces.
M.

In other matters, the most worthy doctors of medicine are to be consulted, who can advise more wisely than I.

Moreover, we should have recourse to the Heaven-governing Jehovah, the first and greatest physician and to his Divine Mother the Virgin Mary who grants us to be carried away from this disturbance and filth to the heavenly seat where we shall enjoy life everlasting.

You have my useful little book, O Bernhard de Waltkirch! It may indeed be that it is blameworthy in me but it is the work of a simple and sincere, so to speak, tyro of a man at the recent Nones of November which will be seen to explain the cause of this filthy disease which is now making inroads on us.

No one can find the origin of it except the infection caused by the conjunctions and congregations of the stars, as it is wholly alien from nature and hitherto unseen, unknown and totally unheard of in the history of these countries. Granted, then, that the book is not elaborated by subtle artifice—such as the Phidian Minerva or Venus too much calls for—yet it will be pleasing to you, the gift of a friend. For I do not ask that you should lay it up in a golden chest or that you should make

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medicine were sufficiently extraordinary; one very famous physician, Pietro Andrea Mattioli (Mathiolus), of Florence, 1501-1577, put six score, 120, ingredients in his elixir. It was called Theriaca or Theriac from the Greek Ther or Therion, a wild beast, as it was considered a specific against poisonous bites of beasts and serpents, and from its great improver, Theriaca Andromachi. Through a 'corruption of the Old French it became known in English as Treacle—from its supposed place of manufacture it was called Theriaca Venetiana or Venice Treacle (The Sister Profession, Canad. J. M. & S., July, 1919).'"

71. A Diamoron is the same as: "Diamorum (-o), a boiled juice extract of mulberries, Morus, generally Morus nigra."

so much of it as Ptolemaeus Philadelphus made of his library stuffed full of books of every kind.[72]

Nor should you consider it should be held in so much honor as Darius held the works of Homer which, in a captured book case were among the spoil taken with him and which were decorated at his command with gold and gems and pearls.[73] Neither do I forbid that you after careful perusal should give it to the flames, as it is not such as the books of Virgil which the Divine Augustus forbade to be burnt though Virgil himself wished it.[74]

Farewell, Unique Specimen of Nobility, and again farewell, Lover of all Literature.

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72. Ptolemy Philadelphus (Ptolemy II) of Egypt who enlarged and enriched the Alexandrian Museum and Library founded by his father Ptolemy Soter (or Lagus).

73. A well known story of Darius Codomannus, the last Emperor of Persia, defeated by Alexander of Macedon at the Battle of Issus, 333 B. C., and taken prisoner. The story of the jewelled Homer is circumstantially told by Arrian in his Historiai Anabaseos Alexandron, which is truly characterized as a masterly production.

74. The story is told that Virgil, dissatisfied with his Aeneid, desired that it should be destroyed, but Augustus refused to allow this to be done.

THE CLINICAL VALUE OF BISMARSEN IN THE TREATMENT FOR SYPHILIS *

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Bismarsen, or bismuth arsphenamine sulphonate, is a new drug synthesized by Dr. George W. Raiziss and tested clinically for the first time early in 1925. According to Raiziss, the empiric formula is C_{21} H_{21} O_{12} As_3 Na_3 S_3 N_3 Bi_2; the arsenic content varies from 12 to 15 per cent and the bismuth from 23 to 25 per cent.

The drug thus combines two of the most efficient antisyphilitic agents in one preparation, and has won for itself a place in syphilotherapy because of its spirillicidal and defense arousing properties, its low toxicity and absence or mildness of local reactions combined with stability and ease of administration.

Injections are made by the intramuscular route only, and my associates and I have obtained the best results with a dosage of 0.2 Gm. once a week as a secondary course in the treatment for early syphilis, and for chronic syphilis, 0.1 Gm. once a week. The drug is dissolved in about 2 cc. of sterile bismarsen solvent, which is sterile distilled water containing 0.25 per cent butyn. All of our injections are made into the upper-inner or upper-outer quadrant of the buttock. The drug must be completely dissolved before being given and great care is taken not to enter the blood stream. Use of the aqueous solution containing the small amount of butyn, supplemented by vigorous and prolonged massage over the site of injection, has in our experience reduced pain and local tenderness almost to nothing.

We have had no abscesses develop following the injections, and in a series of 204 patients treated by Stokes and Chambers [1] only one abscess occurred. The drug has been in clinical use more than four years and has proved entirely stable, nor have any notable variations in its therapeutic efficiency been detected, either by experimental or clinical observation.

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1. Stokes, J. H., and Chambers, S. O.: Bismuth Arsphenamine Sulphonate: Clinical Observations on a New Arsphenamine Synthetic in the Treatment of Syphilis, J. A. M. A. **89**:1500 (Oct. 29) 1927.

Raiziss [2] reported that bismuth arsphenamine sulphonate is tolerated intramuscularly by white rats in doses of about 500 mg. per kilogram of body weight. We have encountered two cases of generalized exfoliative dermatitis, and a larger number of localized skin reactions; the latter are controlled by the administration of epinephrine a few minutes before the injection of bismarsen, which is generally given in 0.1 Gm. dosage. Stokes and Chambers [1] observed three nitritoid crises in their series of 4,200 injections, and O'Leary [3] reported two delayed nitritoid reactions in a group of eighty-five patients receiving a total of 1,145 injections of this drug.

As to the spirillicidal action, we have found bismuth arsphenamine sulphonate to be less rapid in its action than neoarsphenamine, as determined by dark-field examinations on the primary lesions.

The series of cases considered in this paper consisted of 152 carefully studied cases of all types of syphilis. Thirty-one of these cases were from private practice and carefully observed in the office. The remaining cases were from the outpatient department of the Atlantic City Genito-Urinary Clinic. About 5,000 treatments have been given in this clinic to date.

PRIMARY SYPHILIS

All of the patients with primary syphilis were positive for *Spirochaeta pallida* on dark-field examination at the time they presented themselves at the clinic. Dark-field examinations were made daily on only a small percentage of the patients as the average persons could not find time to report daily to the clinic, so we determined the therapeutic value of the drug on the amount of clinical improvement and the change in the weekly Wassermann test.

Nineteen cases were studied; thirteen showed a seropositive and six a seronegative reaction. In those cases in which the Wassermann reaction was positive before treatment was instituted, it required on the average of twenty injections of bismarsen, 0.2 Gm. each, to reduce the blood to negative, although in one case in this series the Wassermann reaction was made negative after the twelfth injection. There was one failure, or 7.7 per cent; in this case the Wassermann reaction remained positive after the first full course of treatment, although the clinical manifestations of the disease had entirely disappeared.

None of the patients with the seronegative reactions developed a positive Wassermann reaction during the first course of treatment or after-

2. Personal communication to the author from Dr. George W. Raiziss, Philadelphia.

3. O'Leary, P. A.: Bismuth Arsphenamine Sulphonate: A New Synthetic Drug for Intramuscular Use in the Treatment of Syphilis, Arch. Dermat. & Syph. **18**:372 (Sept.) 1928.

ward. The Wassermann test was taken in the first case after the eighth injection, in the second case after the tenth injection, in the third case after the twenty-first injection, in the fifth case after the fifth injection, in the sixth case after the fourth injection and in the seventh case after the tenth injection. In none of these cases was the Wassermann reaction positive following the full course, which consisted of twenty injections of 0.2 Gm. of bismarsen once a week. It would seem that the patients with the seronegative reactions do not develop a positive Wassermann reaction during treatment with bismarsen, but in treating those patients with positive Wassermann reactions in early syphilis, bismarsen given once a week has not been as effective as neoarsphenamine given intravenously, alternating with potassium bismuth tartrate.

We have studied carefully 200 cases of primary syphilis with a positive Wassermann reaction in which the latter method of treatment was used, and in none of our cases was the Wassermann reaction positive following the completion of the first course. It would seem, therefore, that it is not advisable to substitute bismarsen for other proved therapeutic agents in the treatment for early syphilis, especially in those cases in which there is a positive Wassermann reaction at the time treatment is first instituted. It may be possible, however, that more intensive use of bismarsen, that is, 0.2 Gm. twice a week as advocated by Stokes, might bring about a 100 per cent result in cases of early syphilis in which there is a positive reaction. It is well known, however, that in cases which show a positive Wassermann reaction after a thorough primary course of treatment, the prognosis is universally unfavorable. Therefore it behooves the syphilologist to select the drug that will sterilize the patient rapidly and thoroughly, provided he is intelligent and will remain under treatment a sufficient length of time to be thoroughly cured. I do not think it advisable to consider the natural forces of the body in treating patients with primary syphilis, provided one can sterilize the patient. If, however, the patient is one who may discontinue his treatment before a cure is effected, it is better to use a less powerful spirocheticidal agent, for in doing so one allows the natural defensive forces of the body to aid in controlling the disease or one even stimulates them by the use of bismarsen. It is in these cases of early syphilis, in which improper treatment is given, especially when arsenicals are administered intravenously, that one sees early involvement of the central nervous system. Therefore, our conclusions are that in the treatment of all patients with primary syphilis who can be kept under control and observation until they are thoroughly sterilized, intravenous arsenical preparations combined with bismuth intramuscularly are the most effective and efficient in producing sterilization; that while bismarsen is an excellent drug to be used in conjunction with intravenous therapy, it should not be given

first place, and that when used in primary syphilis it should constitute the second course of treatment.

In substituting bismarsen therapy for intravenous injections of neoarsphenamine during the second course of such treatment, we eliminate largely reactions which are apt to occur at this time, the most common being dermatitis. An eruption has been practically eliminated by this method, although in older cases of syphilis a localized skin reaction frequently develops and in a very small percentage of cases, a generalized arsenical dermatitis. We feel, however, that bismarsen plays a less significant part in sterilization in these cases of early syphilis, as the majority of the patients are cured following the first course of treatment with neoarsphenamine and bismuth.

EARLY SECONDARY SYPHILIS

I shall analyze twenty-nine cases of early secondary syphilis in which bismarsen was administered, the patients presenting positive Wassermann reactions of the blood and active cutaneous lesions. In all but two, or 6.89 per cent, the Wassermann reactions of the blood and spinal fluid were negative after the twentieth injection. In twenty-nine similar cases in which 0.6 Gm. of neoarsphenamine was given once a week alternating with 0.1 Gm. of potassium bismuth tartrate given intramuscularly, we had 100 per cent negative Wassermann reactions of the blood and spinal fluid after the first full course of treatment, which shows that the latter method is superior to the use of bismarsen in the treatment of patients with early secondary syphilis. However, had we given double the amount of bismarsen, in other words, 0.2 Gm. intramuscularly twice a week, our results might have been as good as those obtained through the use of intravenous therapy combined with bismuth.

As in primary syphilis, we advocate the use of bismarsen in conjunction with neoarsphenamine intravenously and bismuth as a second course which should follow the first after a four weeks' rest period, and which should consist of twenty weekly injections of 0.2 Gm. doses of bismarsen into the muscle of the buttocks.

In one case in which there is a positive Wassermann reaction of the blood, treatment with bismarsen alone was started in the primary stage of the disease, and three courses or a total of sixty injections have been given to date. This, I think, helps to prove that bismarsen given once a week is not superior to intravenous therapy in the treatment for early syphilis, and that it should be used as an adjunct to such treatment.

LATE SECONDARY SYPHILIS

Eleven cases of late secondary syphilis were carefully studied; some of the patients showed recurring secondary manifestations and others were in the latent stage of the disease. All the Wassermann reactions

of the blood were strongly positive. In all but one of these cases there was a definite clinical improvement after the tenth injection. The Wassermann reaction was unchanged in only two cases following the first course of treatment, which consisted of twenty injections of bismarsen, 0.2 Gm. each, given once a week. The Kolmer complement-fixation test showed definite improvement in two cases and was made negative in seven cases, or 63.6 per cent, which is exceptional in late secondary syphilis.

It is our practice to use bismarsen as an initial course in many cases of late secondary syphilis, for here one is dealing with a disease in which complete sterilization is often impossible, the spirochetes having largely left the blood stream and become isolated in the various tissues of the body, thus making the organism inaccessible.

The treatment for late secondary syphilis should be patterned more or less after the treatment for tertiary syphilis. The latter condition differs from the former in that the spirochetes have probably entirely left the blood stream and lymph channels, except for occasional recurrences, and the disease has become one involving the tissues of the body, with marked isolation of the organism in some cases. In late secondary syphilis, one is not particularly interested in the rapid destruction of spirochetes, as one is in early syphilis, and a drug should be selected that is well tolerated by the patient, that will produce the smallest percentage of reactions, that has a high therapeutic efficiency, and that will, if possible, stimulate the patient's mechanism of resistance.

Intramuscular treatment in late secondary syphilis has its advantages over intravenous therapy, and one of the strongest points in its favor is the lessening in the number of cases of arsenical poisoning. It is in the chronic stage of syphilis that we encounter the greatest number of reactions from the intravenous use of arsenicals, for during this period the liver, which bears the brunt of such treatment, is apt to fail in its function. This failure may be due to syphilis, to overtreatment with arsenic or to both. With the intramuscular administration of bismarsen, absorption is slower than when intravenous treatment is used; the action of the drug is prolonged, although O'Leary [3] has demonstrated that the shadows cast by bismarsen, as shown by roentgen-ray films, disappear within two hours after injection, and we have had patients who complained of tasting or smelling the drug immediately following intramuscular injection; also, the reactions are immediate. In some cases the drug is as rapidly absorbed apparently as when it is given by the intravenous route, but this is not true in the majority of cases, as the patients have no sensations or any immediate reactions from the drug.

We have proved in our work at the clinic that bismarsen is definitely more potent as a spirocheticidal agent than potassium bismuth tartrate.

It seems to be especially well tolerated in late cases of syphilis. The clinical results, as we have stated, have been very uniform. Only one patient, or 9.09 per cent of the patients with late secondary syphilis, did not show a marked clinical improvement. We feel that the improvement in late secondary syphilis following the use of bismarsen equals that of any other arsenical used, and with much fewer reactions. In other words, it is the drug of choice for all patients with late secondary syphilis who tolerate arsenic. Of course, it may be, and has been, advisable to give a course of bismarsen followed by a rest period and then to alternate with some preparation of mercury or potassium bismuth tartrate.

TERTIARY SYPHILIS

Cutaneous Syphilis.—Bismarsen has been especially efficient from a clinical standpoint in the treatment of patients with tertiary lesions of the skin. The dosage is gaged principally by the age and physical condition of the patient. In many of our older patients with cutaneous lesions, it is advisable to give an initial dosage of 50 mg. If there are no reactions, the second dose should be increased to 0.1 Gm., and 0.1 Gm. should be used thereafter until twenty injections have been given. We rarely give patients over 40 years of age with chronic syphilis more than 0.1 Gm. once a week. In this way we avoid unnecessary complications, and clinical improvement has been 100 per cent in sixty cases studied. However, the effect on the Wassermann reaction has not been as gratifying. Six of sixty cases, or 10 per cent, showed a negative Kolmer complement-fixation test following the first course of treatment of twenty injections of 0.1 Gm. each. Of course, this is a low percentage, but when one considers that the results following one course of intravenous injection of neoarsphenamine or arsphenamine are practically no better, these results compare favorably with all others. The clinical results were 100 per cent, and the reactions were practically nil.

Visceral Syphilis.—We were able to study carefully eighteen cases of visceral syphilis. In all these cases the cardiovascular type of the condition was present. The Wassermann reaction after the first course of treatment, which consisted of 0.1 Gm. once a week for twenty weeks, was not changed in nine cases, or 50 per cent, and although twelve cases, or 66.6 per cent, showed a marked clinical improvement, the others showed practically no improvement after the first course of treatment. After the second course of treatment, which consisted of twelve injections of 0.1 Gm. each, two more cases, or 77.8 per cent, showed improvement. There were practically no reactions in this group, except in one patient who occasionally complained of slight nausea several hours following the injection. Here again, we feel that bismarsen is superior to bismuth, and unquestionably it is 100 per cent safer than the admin-

istration of arsenicals intravenously. There are, however, a few patients with visceral syphilis who do not tolerate bismarsen, but who show clinical improvement after very small doses of neoarsphenamine injected intravenously. There were seven cases in this group, or 38.9 per cent, that showed a negative Kolmer complement-fixation test following the first course of treatment, which is an especially good result for visceral syphilis; in fact, it is a much better result than we have ever obtained with the use of neoarsphenamine alternated with potassium bismuth tartrate. We compared this to eighteen similar cases in which bismuth therapy alone was used; only two cases, or 11.1 per cent, showed negative Wassermann reactions following the first course of treatment, which consisted of twenty injections of 0.1 Gm. of potassium bismuth tartrate once a week, giving a total of 2 Gm.

Cerebrospinal Syphilis.—Our list of cases of cerebrospinal syphilis is particularly interesting, for some of our results have been brilliant from a clinical standpoint. We do not include clinical dementia paralytica in this group, as we feel that when the disease is this far advanced bismuth and arsenic have very little therapeutic value. This group includes cerebrospinal syphilis of the acute meningeal type, tabes dorsalis and cerebrospinal syphilis of the arterial type. We studied fifteen of these cases carefully, and all showed clinical improvement. In fact, in some cases the clinical improvement was startling. Five cases, or 33.3 per cent, gave negative Wassermann reactions of the blood following the first course of treatment, which, in the average case, consisted of 0.1 Gm. of bismarsen once a week for twenty weeks. Three, or 20 per cent, showed a completely negative reaction of the spinal fluid following the first course of treatment. The cases in which there was the most marked clinical improvement were of the acute meningeal type.

REPORT OF CASE

A. Z., a white woman, aged 28, who was treated for early cerebrospinal syphilis of the meningeal type, had received thirty-six injections of neoarsphenamine at various times, ranging from 0.45 to 0.9 Gm., the average dosage being 0.75 Gm.; also twenty-four injections of potassium bismuth tartrate of 0.2 Gm. each. There was a recurrence of the clinical manifestations of meningeal syphilis (severe occipital headaches). The Wassermann reaction of the blood before bismarsen was started was strongly positive. The Wassermann reaction of the spinal fluid was strongly positive. The colloidal gold reaction showed the syphilitic curve, and the cell count was over 100 per cubic millimeter. The headaches were relieved for only a short time after a large dose of neoarsphenamine. The patient was developing reactions from intensive treatment the most pronounced one being vomiting, which followed almost immediately after the administration of the drug. On March 16, 1926, she was given 0.2 Gm. of bismarsen intramuscularly. She reported again at the office on March 23. Her head symptoms had disappeared. The second injection was given on this date. The third injection was given on March 30, and the patient said that she was feeling fine, better than at any other time

since she had contracted the disease. There were no reactions following these injections. Other injections were given on April 6, 21, 28 and on May 6. She felt so well that she refused to come for further treatment, but on June 15 she agreed to have a Wassermann test taken of the blood and spinal fluid. The Kolmer complement-fixation test on the blood was negative; the Wassermann reaction of the spinal fluid was negative, and the cell count was within normal limits. The syphilitic zone curve was zero.

This case helps to show the wonderful results that have been obtained in acute meningeal syphilis from the use of bismarsen with practically no reactions. This is only one of several cases that show such results.

SUMMARY

1. We have made a careful study of 152 patients suffering from all types of syphilis who were placed on bismarsen therapy; 31 were private patients and 121 were from the outpatient department of the Atlantic City Genito-Urinary Clinic.

2. To a much larger number of patients, we have given over 5,000 injections of bismarsen. There were two patients under treatment who developed a generalized dermatitis; both recovered.

3. Our work has shown that the use of twenty injections of neoarsphenamine of 0.6 Gm. each and twenty injections of potassium bismuth tartrate of 0.1 Gm. each is more efficient than bismarsen alone in sterilizing patients who have early syphilis. Therefore, in this stage the latter drug should be used only as a second course; thus a larger percentage of patients will be completely sterilized and at the same time complications which frequently occur during the second course of intravenous treatment will be avoided. Those in whom bismarsen may be the only drug used for early syphilis are old people, debilitated persons and patients in whom syphilis is complicated by another disease.

4. In late syphilis, bismarsen is more frequently the drug of choice when one wishes to administer arsenic and bismuth, as the reactions are much fewer and consequently the danger less. The clinical improvement and effect on the Wassermann reaction have been very favorable.

5. The clinical effect of this drug in cerebrospinal syphilis, especially of the acute meningeal type, has been most striking.

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THE RESPONSE OF SEROLOGIC TESTS TO TREATMENT

WITH SPECIAL REFERENCE TO EARLY SYPHILIS *

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In previous communications,[1] our efforts were directed toward a comparison of the Kolmer Wassermann test and the Kahn precipitation test against known clinical data, irrespective of treatment, and our percentage of agreements was low in comparison with that of other investigators. Our present study is confined to a known group of syphilitic patients compared both before treatment and throughout treatment to the persistently negative serologic phase, or in a small group to serologic relapse or Wassermann-fastness.

MATERIAL AND METHODS

Patients.—The material for this study comprised one hundred and five syphilitic dispensary patients, eighty-three with early and twenty-two with latent infections, on whom 910 serologic examinations were made, including both the Kolmer Wassermann and the Kahn precipitation tests on identical serums. Patients were included whose treatment began subsequent to January, 1927, the time at which we started the routine use of the Kahn test in addition to the Kolmer Wassermann test. One additional basis for selection was used, namely, the performance of enough serologic tests per case to make comparisons worth while. No effort was made to pick out patients of good attendance, and no sex, race or age group was specifically considered. This study includes patients whose treatment was complete, patients whose treatment was incomplete and patients whose treatment was still in progress.

Among the patients with early syphilis, thirty-two had primary lesions only, twelve had both primary lesions and early cutaneous lesions,

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1. McIntyre, Mary C., and Gilman, R. L.: A Clinical Comparison of the Kolmer Modification of the Wassermann Test and the Kahn Precipitation Test in Syphilitic and Nonsyphilitic Cases, Am. J. M. Sc. **176**:843 (Dec.) 1928; Serologic Studies: II. A Clinical Comparison of the Kolmer Complement Fixation and the Kahn Precipitation Tests in Syphilitic and Nonsyphilitic Cases, J. A. M. A. **93**:358 (Aug. 3) 1929.

and thirty-nine had cases of frank secondary syphilis. The twenty-two patients with latent syphilis were in the main young and had what might be called early latent infections with no demonstrable clinical signs of syphilis on examination. The amount of previous treatment in two members of this group was such as might be considered negligible.

The sex of the patients and the age of groups are given in table 1. Of the one hundred and five patients, forty were colored and sixty-five were white. Of the patients with primary syphilis, five had extragenital chancres. Of the total number of patients, eleven had conjugal cases.

Serologic Tests.—The serologic studies were carried out at weekly intervals in the earlier part of the patient's treatment, with a subsequent drop to three or four tests for each course of treatment.

TABLE 1.—*Distribution of Patients with Regard to Types of Syphilis, Age, Sex*

Types of Syphilis	Age 11-20	21-30	31-40	41-50	51-60	Total of Cases	Men	Women
Primary syphilis	9	17	1	3	2	32	30	2
Primary-secondary syphilis	2	6	4	..	..	12	9	3
Secondary syphilis	3	29	6	..	1	39	21	18
Latent syphilis	2	13	4	3	..	22	8	14
Total percentage	15.2%	61.9%	14.3%	5.7%	2.9%		64.7%	35.3%

The Kolmer modification of the Wassermann test and the Kahn precipitation test were carried out as outlined by their respective authors and as previously described by us.

Thus far, but fifty-seven examinations of the spinal fluid have been done on the one hundred and five patients; consequently, nothing definitive can be gained from this particular serologic aspect, except a correlation of the serologic observations with the occurrence of positive reactions in five of the fluids.

Treatment.—The drugs used in this study were mainly arsphenamine and bismuth and also in certain cases Bismarsen and occasional injections of neoarsphenamine and sulpharsphenamine. Five of our patients were likewise part of the series treated by fever therapy as reported by Kemp and Stokes.[2] The method of treatment adopted in theory was practically the same for all the eighty-three patients with early syphilis and included alternating courses, with overlap (the starting of a succeeding course of one drug before the preceding course of the other was completed), to a total of three or four courses each of arsphenamine and bismuth without rest interval. A course of arsphenamine averaged from eight

2. Kemp, J. E., and Stokes, J. H.: Fever Induced by Bacterial Proteins in the Treatment of Syphilis, J. A. M. A. **93**:1737 (May 25) 1929.

to ten weekly injections, a course of bismuth from ten to twelve weekly injections. Patients to whom Bismarsen was given received from three to four series of twenty injections each.[3] Cessation of treatment, or "cure," in the early cases was contingent on the patient's having completed the minimum treatment, as set forth, or the prolongation of the treatment with arsphenamine and bismuth for approximately a year beyond the first negative Wassermann test, together with a final complete physical examination including an examination of the spinal fluid and subsequent negative observations. One third of our one hundred and five patients completed our requirements for "cure" or arrest. The average duration of treatment for all was 17.5 months, of which 5.5 months represented the average lapse or rest from active treatment.

TABLE 2.—*Distribution of Patients with Regard to Stage of Treatment*

	Type of Syphilis				
Stage of Treatment	Primary	Primary-Secondary	Secondary	Latent	Total
Treatment complete	13	3	11	6	33
Under treatment at present	12	6	14	12	44
Treatment uncompleted	7	3	14	4	28

TABLE 3.—*Distribution of Patients with Regard to the Drugs Used*

	Type of Syphilis				
Drug System Employed	Primary	Primary-Secondary	Secondary	Latent	Total
Arsphenamine and bismuth*	24	6	29	16	75
Arsphenamine and bismuth, with fever	2	..	3	..	5
Arsphenamine, bismuth and bismarsen	4	3	7	5	19
Bismarsen	2	3	..	1	6

* There were occasional substitutions of neoarsphenamine or sulpharsphenamine in a few of the cases during the course of the treatment with arsphenamine. Bismuth preparations used included potassium bismuth tartrate and bismuth sodium tartrate.

The method of treatment in the latent cases was adapted to the individual patient, the duration of his infection and any previous treatment. The majority of the patients finished six courses of treatment, i. e., three of arsphenamine and three of bismuth, but without overlap and with the employment of rest intervals when indicated by the duration of the infection and the stage of the treatment. A number of patients in this group were started on bismuth rather than arsphenamine, consequently the serologic reactions by courses of treatment are not comparable with those in the early group. Reactions to treatment as they occurred had no demonstrable effect on the serologic reactions.

3. Stokes, J. H., and Chambers, S. O.: Bismuth Arsphenamine Sulphonate, Clinical Observations on a New Arsphenamine Synthetic in the Treatment of Syphilis, J. A. M. A. **89**:1500 (Oct. 29) 1927.

RESULTS

Comparison of the Kolmer and the Kahn Results.—In a series of one hundred and five cases of syphilis under treatment in which nine hundred and ten serologic examinations were made by both the Kolmer Wassermann test and the Kahn precipitation test, there was relative agreement of the parallel tests in eight hundred and thirty-four, or 91.7 per cent. Total disagreement occurred in seventy-six or 8.3 per cent of the cases. The Kolmer Wassermann test was positive in 51.7 per cent and the Kahn test was positive in 52 per cent of the cases. A positive interpretation was given to any reading above 00; e. g.,

TABLE 4.—*Aggregate Results of Comparison of Parallel Serologic Tests*

		Agreements				Disagreements				Relative Agreement, %	Relative Disagreement, %
		Positive		Negative							
Type of Cases	Tests					Kolmer+	Kahn−	Kolmer−	Kahn+		
Primary syphilis...	328	135	41.1%	168	51.2%	12	3.7%	13	4.0%	92.3	7.7
Primary-secondary syphilis.....	82	35	42.7%	39	47.5%	3	3.7%	5	0.1%	90.2	9.8
Secondary syphilis	312	154	49.4%	130	41.7%	15	4.8%	13	4.1%	91.1	8.9
Syphilis latens.....	188	110	58.5%	63	33.5%	7	3.7%	8	4.3%	92.0	8.0
Totals.....	910	434	47.7%	400	44.0%	37	4.0%	39	4.3%	91.7	8.3

TABLE 5.—*A Comparison of the Initial Kolmer and Kahn Tests in Each Case, Prior to Treatment*

Type of Syphilis	Cases	Both Positive	Both Negative	Kolmer + Kahn −	Kolmer − Kahn +	Relative Agreement, %	Relative Disagreement, %
Primary syphilis.....	32	25	4	2	1	93.8	6.2
Primary-secondary syphilis...	12	10	1	1	..	91.6	8.4
Secondary syphilis.....	39	39	..	..	..	100.0	0.0
Total early.....	83	74	5	3	1	95.2	4.8
Latent syphilis.....	22	13	4	4	1	77.2	22.8
Total.....	105	87	9	7	2	91.4	8.6

1− in the Kolmer Wassermann test or 001 in the Kahn test. We believe that although the occurrence of this degree of positiveness in diagnostic tests may occasionally be due to a nonspecific sensitivity, its occurrence during treatment is of real significance.

As a means of comparison of the diagnostic serologic tests, table 5 is included, which shows that in 91.4 per cent of one hundred and five blood tests done on admission and before treatment, the Kolmer and the Kahn results were in agreement and that in 8.6 per cent they were in disagreement.

The Kolmer modification of the Wassermann test was positive in ninety-four, or 90 per cent, of the one hundred and five tests, and the Kahn test was positive in eighty-nine, or 85 per cent.

A comparison of the initial and the final serologic observations in primary syphilis gives the following data: Four cases were serologically negative by both the Kolmer and the Kahn tests at the time of entrance, one was Kolmer 00 and Kahn 111, two were Kolmer 44 and Kahn 000. Of the four that were serologically negative by both tests, all remained negative throughout observation. The one with Kolmer 00 and Kahn 111 remained negative. Of the two with Kolmer 44 and Kahn 000, one had a serologic relapse in the sixth course; the other showed a positive Kahn test on the second specimen. Both showed a persistent tendency toward the negative serologic phase after a negative test was once obtained, and the final test was negative. The spinal fluids of these seven patients were all negative.

Ten of the twelve cases of combined primary and secondary syphilis were positive by both tests at the time of the patient's entrance; one was Kolmer 44 and Kahn 000, and one was negative by both tests, and remained negative throughout treatment. The latter case, which was proved to be syphilis by dark-field examination, was unusual in its failure to give a positive result in either the complement-fixation or the precipitation procedures. The secondary eruptive features appeared early, while the primary lesion was still at its height. Such a difference in biologic response has been termed by Moore and Kemp [4] as illustrative of an inherent lack of resistance against infection.

All of the thirty-nine cases of secondary syphilis were positive by both the Kolmer Wassermann test and the Kahn test, although with quantitative differences in certain instances.

In the series of latent syphilis, four of the twenty-two cases were serologically negative by both tests at the time of entrance. In those cases in which the serologic results at the time of the patient's entrance showed a disagreement between the Kolmer and the Kahn tests, the following was observed: in four the serum showed a positive Kolmer reaction and a negative Kahn reaction, and of these, two gave positive reactions in the Kahn test on the second specimen, thereby agreeing with the Kolmer, while the remaining two did not give positive reactions in the Kahn test until after the fourth specimen (one month later). In the case of one patient, the blood at entrance gave a negative Kolmer and a positive Kahn reaction, but showed a negative Kahn reaction with the second specimen and thereafter negative results in both tests throughout the course of treatment. In other words, the Kahn reaction subsequently agreed with the original Kolmer reaction taken at the time of admission.

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4. Moore, J. E., and Kemp, J. E.: The Treatment of Early Syphilis; Clinical Results in 402 Patients, Bull. Johns Hopkins Hosp. **39**:16, 1926; The Wassermann Reaction in Treated Early Syphilis, ibid., p. 36.

Graphic Results.—The serologic record of each group, course by course, is represented graphically in the accompanying charts and, with the exception of that of the group with latent syphilis, gives an index to the serologic range of both tests at the beginning, during, and at the end of each course.

The serologic curves in early syphilis (charts 1 to 3), are broken because the overlapping of courses of treatment disturbs their syn-

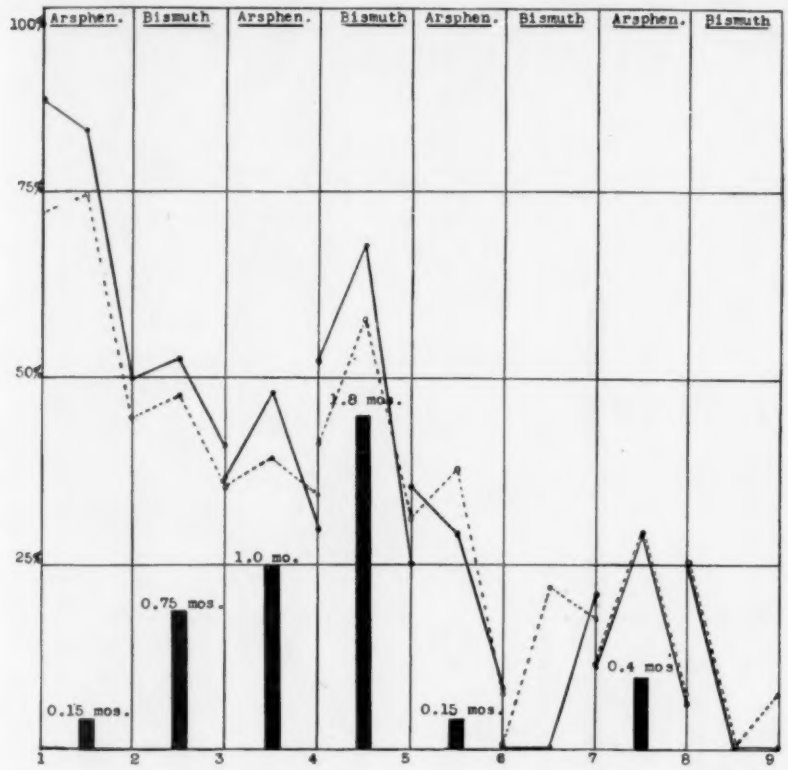

Chart 1.—Primary syphilis (thirty-two cases). In this and subsequent charts, the solid line represents the Kolmer Wassermann test and the broken line represents the Kahn precipitation test. The ordinates indicate positivity of serologic reaction and the abscissae represent courses of treatment. The average lapse of attendance in months for each course is indicated by blocked perpendicular lines.

In the cases of primary syphilis, the total duration of treatment was 17.5 months, with a total average lapse from treatment of 5.7 months. The Kolmer Wassermann test starts with a positivity of 87.5 per cent; the Kahn precipitation test, with a positivity of 72.5 per cent.

chronism. The end of any given course of treatment may be concurrent with the middle of the succeeding course. The percentage designations of serologic positivity appearing in the graphic charts represent a

compilation of the usual quantitative readings stated in a percentage average.

The downward curve toward negative serologic results in primary syphilis in much the same for both the Kolmer and the Kahn tests. In both, it will be noted that there is a rise in positivity in the fourth course of treatment (bismuth), and it will be seen that the greatest lapse from treatment occurred at this period. It is also true that the

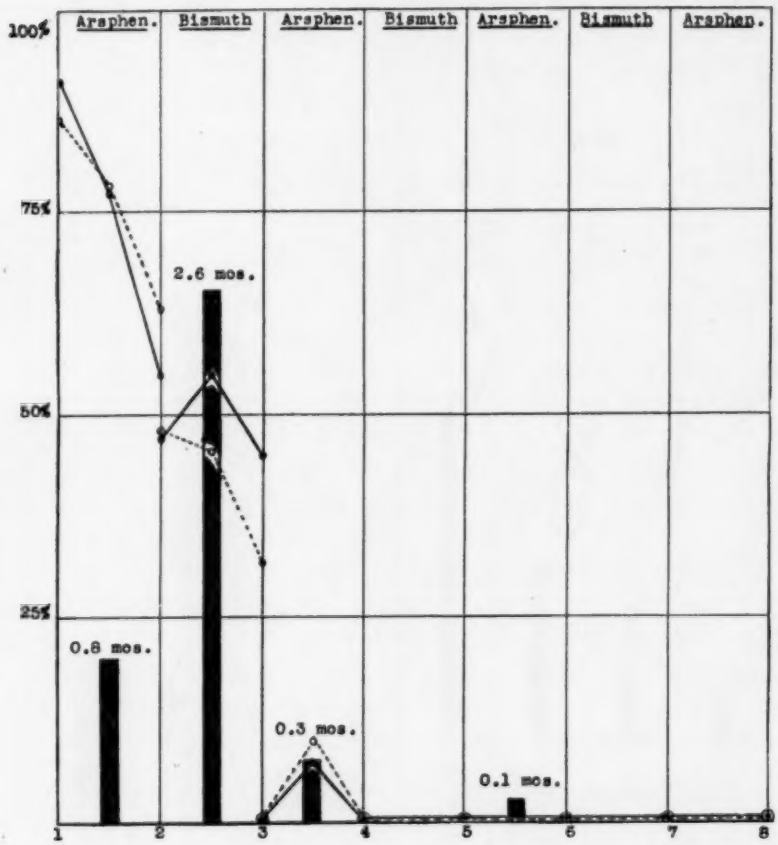

Chart 2.—Combined primary and secondary syphilis (twelve cases). The Kolmer Wassermann test starts with a positivity of 90.9 per cent; the Kahn precipitation test, with a positivity of 86.5 per cent. The total duration of treatment was 17 months, with a total average lapse of 5 months.

number of patients declined, but this decline (from thirty-two to twenty-nine) is not so marked as the increase in lapses from treatment (1.9 months). The rest of the curve tends toward the negative phase. The average duration of treatment for all patients with primary syphilis

was longer than for any other group and the average lapse from treatment was 5.3 months.

In the twelve cases of combined primary and secondary syphilis, the curves for the parallel tests are abruptly and steadily downward toward a persistent negative stage. In these cases, the greatest average lapse from treatment occurred with the second course (bismuth); in all other courses, the lapse was practically nil. The abrupt drop in the serologic curve is unique in comparison with the serologic curves for the other two groups of early syphilis. This does not necessarily indi-

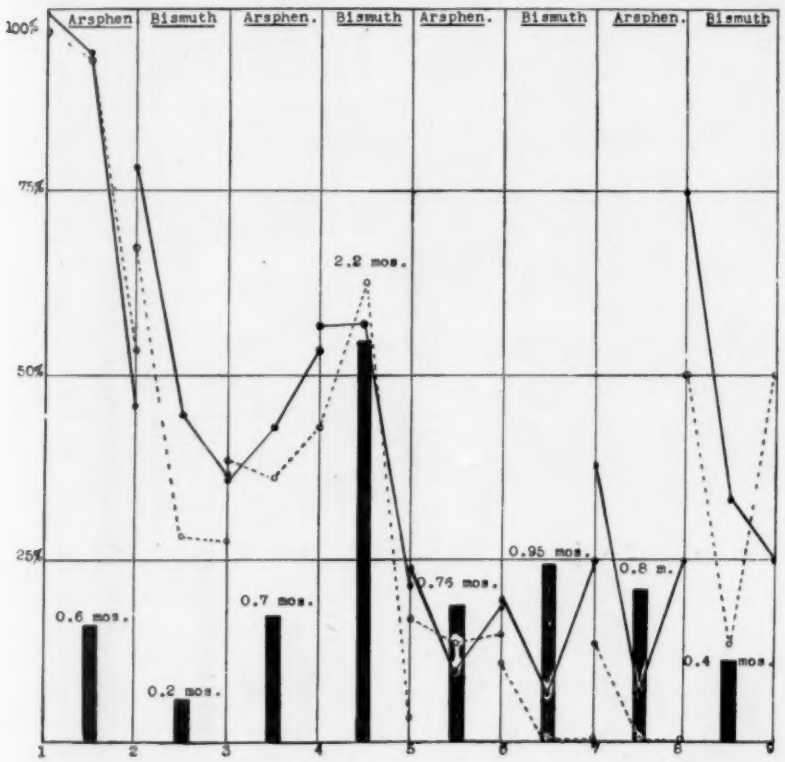

Chart 3.—Secondary syphilis (thirty-nine cases). The Kolmer Wassermann test starts with a positivity of 99.5 per cent; the Kahn precipitation test, with a positivity of 94.5 per cent. The total duration of treatment in the cases of secondary syphilis was 17.2 months, with a total average lapse from treatment of 6 months.

cate a better outcome than does the curve for the primary group, for we agree with Moore and Kemp and others that treatment early in the infection gives the best prognosis. This group, however, had a smaller percentage of serologic relapse than did the primary group, but the number of cases, being small, permits no generalization. It is

interesting to recall at this point that Moore and Kemp, using a group designation different from ours, noted a cure in 29.5 per cent of sixty-one cases of serologically positive primary syphilis as against 32.1 per cent cured in two hundred and ninety-nine cases of early secondary syphilis.

The rise in positivity in the fourth course and the increase in lapse from treatment are present in secondary syphilis, as well as in primary

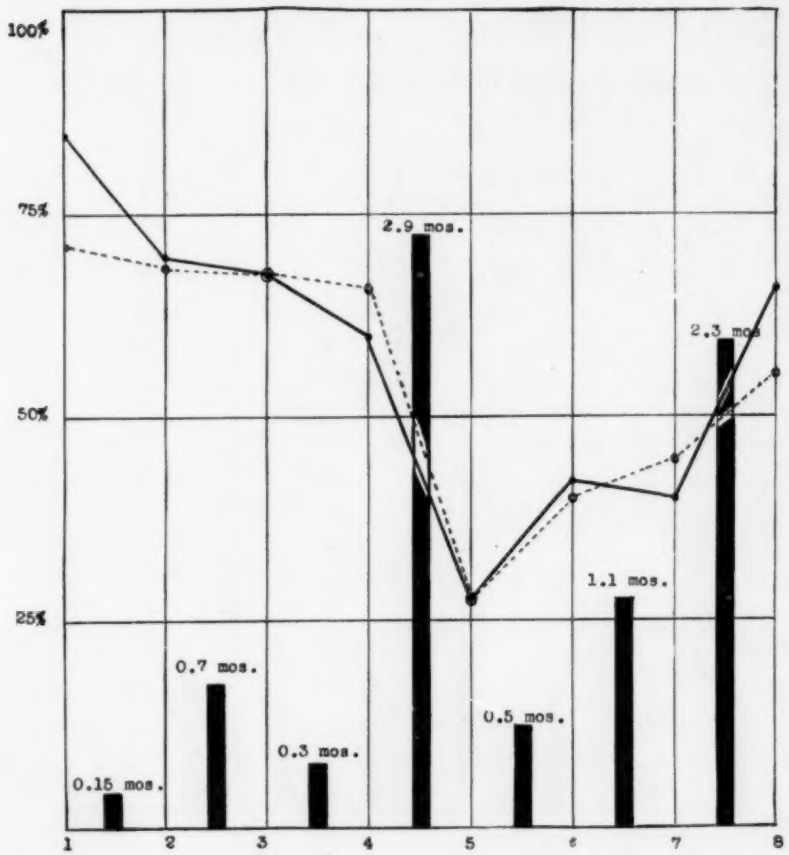

Chart 4.—Latent syphilis (twelve cases). The Kolmer Wassermann test starts with a positivity of 85 per cent; the Kahn precipitation test, with a positivity of 71 per cent. The total duration of treatment in the cases of latent syphilis was 17.5 months, with a total average lapse from treatment of 5.7 months.

syphilis. The rise in the eighth course is due to serologic relapse in a small number of patients. The curve downward toward negativity and the rise in positivity mentioned are about the same for both tests.

The cases of latent syphilis gave a serologic curve that ranged up and down, and the greatest lapse from treatment occurred in courses

4 and 7. This bears no relation to the serologic curve. The graph for this group is more simply constructed than that of any of the other three groups, being a compilation of the serologic results at the beginning of each course only. The curves for both tests are practically the same after the first course. Because of the variation in treatment in this series, the course number bears no relation to the type of drug; whereas in the graphs of the serologic reaction in early syphilis, the odd numbers indicate courses mainly of arsphenamine and the even numbers courses of bismuth.

While in each series the initial Kolmer Wassermann test was more sensitive in its positive reaction, the graphs show that the Kahn precipitation test and the Kolmer Wassermann test fluctuate only slightly in showing positivity under treatment. Either test alone seems to be an adequate control. One may expect isolated discrepancies between these two tests or any recognized tests, and the evaluation of the single

TABLE 6.—*Comparison of Results of Parallel Tests Made on the Same Patient*

Date	Kolmer Wassermann Test	Kahn Precipitation Test	Patient
March 17	00	000	White man, aged 27, with latent syphilis, early case, the approximate duration of the infection being six months
March 19	00	000	
March 20	44	233	
March 21	00	000	
March 22	0-	000	
March 23	12	012	
March 24	43	233	
March 27	44	444	
March 28	12	012	
March 29	00	000	
March 30	44	444	
March 31	12	122	

results will always be difficult. The patient under treatment will always show some variation in reaction at times even to the same type of serologic test done simultaneously by two competent laboratories. It is only when a series of tests can be done that a proper comparison may be drawn by an analysis of the resulting aggregate tendency of the patient in the individual serologic reactions. Using this criterion, we believe that the two tests appear equally sensitive when the syphilitic patient is under treatment.

As evidence of the remarkable quantitative agreement between the Kolmer Wassermann test and the Kahn precipitation test when the patient is under treatment, as well as of the daily fluctuation that is possible, the results of a series of parallel serologic tests in the same case are given in table 6.

The Serologic Result in Relation to Treatment Employed.—We can make but little comment in a comparison of drugs or methods of treatment in relation to the serologic result for the reason that the majority of our patients were treated by the same plan, and the drug systems

fall into but two main groups, i. e., arsphenamine-bismuth and bismarsen. By referring to table 7, the serologic trend may be viewed in the aggregate classified by drug systems.

Positive tendency or serologic relapse in the patient under treatment is dependent on factors other than the choice of drugs, notably variations in the plan of treatment, the patient's cooperation and attendance (regularity vs. lapse), the stage of syphilis at the time of treatment, and finally that inherent idiosyncrasy of a few patients associated possibly with a change in immunity that causes them to relapse in spite of close control of all other known variable factors. Positive tendency in relation to the stage of the infection is illustrated in table 8.

TABLE 7.—*Serologic Tendency in Relation to Treatment*

		Positive*				Negative			
		Tendency		Final Test		Tendency		Final Test	
Drug System	Cases	Cases	Per Cent	Cases	Per Cent	Cases	Per Cent	Cases	Per Cent
Arsphenamine and bismuth	75	26	34.0	18	24.0	49	66.0	57	76.0
Arsphenamine, bismuth and fever therapy	5	3	60.0	..	....	2	40.0	5	100.0
Arsphenamine, bismuth and bismarsen	19	12	80.3	6	31.5	7	39.0	13	68.5
Bismarsen	6	5	83.3	4	66.6	1	16.7	2	33.4

* Positive tendency does not necessarily mean serologic relapse, but rather a delay toward negativity or the occasional occurrence of a weakly positive test. Positive final serologic result may mean a true relapse, but not necessarily Wassermann fastness. It indicates the last serologic test at the time of our analysis.

TABLE 8.—*Positive Tendency in Relation to the Stage of the Infection*

		Positive Tendency		Positive Final Test	
Stage of Syphilis	Cases	Cases	Per Cent	Cases	Per Cent
Primary	32	10	31	5	16
Primary-secondary	12	4	33	3	25
Secondary	39	17	44	10	25
Latent syphilis	22	15	70	10	45

Serologic Relapse.—The fact that the final test is positive in a certain proportion of the cases is not necessarily indicative of "Wassermann-fastness." It must be remembered that but thirty-three of the one hundred and five patients had completed their treatment, and the actual number with persistently positive serologic reactions was but ten of the entire group. These patients, three with early syphilis and seven with latent syphilis, are still under treatment or under a rest with close observation. We are unable at this time to determine what percentage of these will prove to be truly Wassermann-fast.

Serologic relapse has occurred in twenty-two (26.5 per cent) of the eighty-three patients with early syphilis. Our conception of serologic relapse includes the occurrence of a medium to strongly positive reaction in the Kolmer Wassermann and the Kahn precipitation tests

(usually both) followed by a confirmatory result at the closest possible opportunity. These patients were divided as follows: those with primary syphilis, ten; those with combined primary and secondary syphilis, one, and those with secondary syphilis, eleven. There were seven in the group with latent syphilis. It is interesting that the highest percentage of serologic relapse was in the cases of primary syphilis and latent syphilis, i. e., 31 per cent in both groups.

The five instances of positive spinal fluids and one late cutaneous recurrence occurring in the group with secondary syphilis had no relation to the process or type of treatment. Recurrences were equally divided between patients of excellent attendance and those of frequent lapse in attendance.

The Serologic Result in Relation to Patient's Lapse.—If any one factor assumes importance in serologic relapse, it is the patient's lapse from treatment. This relation of lapse to serologic tendencies in the aggregate has been illustrated graphically. It is significant in this connection that the greatest average lapse in three of the groups occurred during the fourth course of treatment. Several explanations may be offered for this consistency, all of which might be termed in a summation as "patient fatigue." Several intrinsic factors are operating at this stage of the patient's treatment: 1. He has been under active treatment for approximately six months with weekly visits to the dispensary. 2. The greater share of this time he has had a sense of well-being and health. 3. He is of the belief that six months is a considerable period of time, and that since he feels cured he is cured, his physician notwithstanding. In a number of patients there is a varying amount of local reaction to treatment, notably intramuscular treatment. An effective liaison with a departmental follow-up service generally operates promptly to secure the return of a large majority of the patients lapsing on these intrinsic grounds.

The attendance of the patient and his inherent tendency to lapse constitute one of the variable, and largely controllable, factors in securing good serologic results. Serologic relapse is apparently often referable to the amount of lapsed treatment and in our series bears no striking relationship to the stage at which treatment was commenced. It is noteworthy that of twenty-nine serologically relapsing patients, seventeen were poor in attendance; the remaining twelve were divided between an average and an excellent type of attendance. We found but three patients of good attendance (two with early syphilis) in whom an early reversal of the positive Wassermann reaction was followed later by a serologic relapse. The occurrence of late cutaneous recurrences appeared independent of the regularity of attendance. Among the ten patients who thus far represent "Wassermann-fastness,"

all but three were excellent in attendance. This phenomenon seems to bear more relation to the stage at which treatment is first initiated together with the possession of an inherent immunologic factor that maintains an invulnerable positive serologic response.

SUMMARY

1. In a study of one hundred and five cases of syphilis comprising both early and latent types in patients under treatment, involving nine hundred and ten serologic tests in duplicate, the initial agreement between the Kolmer-Wassermann test and the Kahn precipitation test was 91.4 per cent and the disagreement was 8.6 per cent.

2. In the eighty-three cases comprising the group of patients with untreated early syphilis, the agreement was 95.2 per cent, and included in this was the 100 per cent agreement between the tests in cases of untreated secondary syphilis.

3. In the twenty-two cases of latent syphilis before treatment there was 77.2 per cent agreement and 22.8 per cent disagreement.

4. In nine cases of syphilis in which there was disagreement between the two tests, the Kolmer Wassermann test was positive in seven, and the Kahn precipitation test was positive in two.

5. Subsequent comparison of the two tests during treatment showed in the aggregate a close agreement throughout observation.

6. Although the Kolmer Wassermann test was found to be more sensitive in untreated syphilis, either test alone furnishes adequate serologic control during treatment.

7. No conclusions were drawn concerning any relation between the plan of treatment or the drugs used and the serologic response in either test.

8. Delayed serologic response appears definitely associated with the stage at which treatment is begun and the irregularity of the patient's attendance.

9. The occurrence of serologic relapse is associated with irregularity of attendance, but occurred independent of the stage at which treatment was begun.

10. Wassermann-fastness occurred independent of any controllable factor, except the stage of the infection at which treatment was begun.

11. Lapse in the patient's attendance is of primary importance in the failure to produce optimal serologic response. This characteristic of the patient is inevitable at a certain stage in his treatment, and fortunately its effect is confined to a minority in whom prolongation of treatment is necessary for arrest or "cure."

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CLINICAL EXCRETION OF BISMUTH: BISMUTH METAL*

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The excretion of bismuth has been studied chiefly in animals. The clinical excretion of most of the products used currently in the treatment of patients with syphilis has not been determined. Certain products used by foreign investigators in studies of clinical excretion are not used in this country, and some of them are trade-marked specialties of unknown or uncertain composition. We have recorded a total of fifty-six different products reported in the literature, and one investigator [1] claims to have prepared twenty-four organic bismuthyl derivatives. There might be, therefore, a total of eighty products of bismuth which have been or may be offered to physicians for use in the treatment for syphilis. Most of these products have little or nothing original to offer and are superfluous. In view of these circumstances, it appeared desirable to undertake studies of typical representatives of bismuth products under clinical conditions.

All products of bismuth may be classified into two groups: the insoluble and the soluble. The insoluble group may be subdivided into the water-insoluble and the oil-insoluble and the water-soluble suspended in oil; and the soluble group, into the water-soluble in aqueous mediums, and in glycol, which we have recently introduced.[2] As representatives of the different subgroups, the following were chosen for study: the

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1. Browning, C. H.: Proc. Roy. Soc., s. B. **102**:1, 1927.

2. Hanzlik, P. J.; Mehrtens, H. G.; Gurchot, C., and Johnson, C.: Iodobismitol: A Soluble Bismuth Product for Use in the Treatment of Syphilis, J. A. M. A., to be published.

metal (water-insoluble and oil-insoluble) suspended in dextrose solution, bismuth salicylate (insoluble) in oil, potassium bismuth tartrate (water-soluble) in oil and bismuth sodium tartrate (Searle), water-soluble in sucrose solution. These are the products in general clinical use in this country. All contain the bismuth as cation, or in basic form, the form which has characterized the metallotherapy for syphilis. There are reasons to believe that compounds of bismuth, as anion or in acid form, which have not received much attention chemically, and not any pharmacologically and therapeutically, merit consideration. During the past two years we have made a special study of this form of bismuth, soluble in glycol. Therefore, besides obtaining information on the cationic bismuth products for their own sake, we have made use of the results as a basis for comparison with anionic bismuth, to be described separately.

The general plan of our studies on bismuth was indicated in a preliminary report.[3] This encompassed studies on excretion, conditions influencing excretion, distribution, toxicity, syphilis experimentally produced, cerebral penetration, new products, etc., the general object being to determine by these means the choice of bismuth preparations for use in the treatment for syphilis and to establish better control of therapeutic usage and administration. After four years of continued study, this program has been only partially completed because of the great difficulties encountered in making satisfactory quantitative studies on human subjects, and because of difficulties with the quantitative determination of the minute quantities of bismuth present in body fluids, the necessity of controlling the latter with changing conditions in the experiments, and the desirability of following up certain promising leads, especially on cerebral penetration. These various items have made the work slow, tedious and protracted. However, sufficient results have been obtained so that, when they are taken together with those in the literature, a reasonably fair estimate of medication with the different forms of bismuth can be made.

In our work, the patients received bismuth only, thus avoiding analytic complications from arsenic and mercury. Both ambulatory and confined patients, with and without syphilis, have been used. The bismuth products were always injected intramuscularly. Since the doses fell within the therapeutic range, the quantities of bismuth in the body fluids and tissues were much smaller than those reported in several articles on excretion in animals in which the doses generally used have been toxic or fatal. It is perhaps the main criticism of the experiments on animals reported in the literature that the high doses used, besides not being comparable with actual therapeutic usage, might impair the circu-

3. Mehrtens, H. G.; Hanzlik, P. J., and Marshall, O. C.: Proc. Soc. Exper. Biol. & Med. **25**:276, 1928.

lation and renal function and thus give abnormal excretory results, which may even be opposite to those obtained when these functions are normal. For instance, the intestine may assume a vicarious excretory function when the renal functional efficiency is impaired, and thus the fecal output of bismuth under these conditions may be greater than the urinary output. High or toxic and fatal doses of bismuth are known to injure the kidney. On the other hand, therapeutic doses in man have previously been shown by us [4] to increase the functional efficiency of the kidney, as indicated by a diuretic action which is marked enough to be of therapeutic usefulness in the treatment for edemas. This action of the bismuth could conceivably favor the excretion of the metal through the kidney, and thus provide its own mechanism for a rapid removal. Obviously, it could not be definitely known until the matter was tested whether the excretion of bismuth after therapeutic doses in man was comparable with that after toxic doses in animals. The use of comparatively small or therapeutic doses necessitated the greatest care in the application of the analytic method. The description of the method is given in this paper and will not be repeated in other papers of this series.

METHODS OF ESTIMATING BISMUTH

The method described by Leonard [5] was adopted, but it has been modified sufficiently to warrant a description of the procedure used by us.[6] Certain details of technic will be especially useful to the novice, because the method is much more difficult under practical conditions than is at first realized; this is true especially when attempts are made to apply it as a routine to large numbers of determinations made over long periods. The procedure used by us is adapted to both research and routine and makes use of equipment which is permanent. The procedures used with specimens of urine and feces are as follows.

Apparatus and Solutions.—The apparatus consisted of pyrex Kjeldahl flasks (300 cc.), pyrex test tubes calibrated to 25 cc. (Folin sugar-tubes), a bottle for acidified sulphite, a Duboscq colorimeter, pipets, calibrated flasks, a 500 cc. buret for nitric acid, a centrifuge, gas or electric hot plates and a system of glass manifolds and suction-blower for the removal of fumes. Three groups of ten Kjeldahl flasks are connected by loose goose-neck tubes to three small glass manifolds which are joined to a long, glass, connecting manifold attached to a scrubbing tower through which fumes are sucked with the aid of an aluminum suction sweeper and blown into a ventilating pipe beyond a trap in the plumbing system. This disposes of fumes from thirty flasks at once, and the combustion can be conducted in the open laboratory. Pyrex glass is used throughout.

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4. Mehrtens, H. G.; Hanzlik, P. J.; Marshall, D. C., and Brown, N. S.: Bismuth as Diuretic, J. A. M. A. **91**:223 (July 28) 1928. Hanzlik, P. J.; Bloomfield, A. L.; Stockton, A. B., and Wood, D. A.: Diuresis from Water-Soluble Bismuth, J. A. M. A. **92**:1413 (April) 1929.

5. Leonard, C. S.: J. Pharmacol. & Exper. Therap. **28**:81, 1926.

6. Certain modifications in the method and the technic are due to Dr. C. Gurchot, assistant in research, and to Dr. C. C. Johnson, instructor in pharmacology.

The solutions used were: (1) Standard bismuth solution (Leonard); 0.223 Gm. of bismuth oxide (Bi_2O_3) (chemically pure, analyzed and dried to constant weight at 110 C.) is dissolved in the smallest amount of concentrated nitric acid (HNO_3) and made up to 2,000 cc.; 1 cc. of solution = 0.1 mg. bismuth (Bi). (2) Permanent standards; these are prepared as follows and checked against Leonard's standard:

0.5 Gm. potassium chromate (C.P.) in 1,500 cc. water = 0.2 mg. Bi standard
0.075 Gm. potassium chromate (C.P.) in 490 cc. water = 0.1 mg. Bi standard
0.078 Gm. potassium chromate (C.P.) in 1,000 cc. water = 0.05 mg. Bi standard
0.05 Gm. potassium chromate (C.P.) in 1,500 cc. water = 0.02 mg. Bi standard
0.0174 Gm. potassium chromate (C.P.) in 1,000 cc. water = 0.01 mg. Bi standard
0.0077 Gm. potassium chromate (C.P.) in 1,000 cc. water = 0.005 mg. Bi standard
0.0066 Gm. potassium chromate (C.P.) in 1,000 cc. water = 0.002 mg. Bi standard
0.0064 Gm. potassium chromate (C.P.) in 1,000 cc. water = 0.001 mg. Bi standard

For standards of bismuth less than 0.02 mg., 20 cc. colorimeter cups are used. (3) Solution of potassium iodide (KI); 8.5 Gm. of chemically pure analyzed crystals of potassium iodide are dissolved in water up to 500 cc. This solution is kept in a white bottle in order that it may be discarded in case iodine is liberated on standing and the color is changed to yellow. (4) Sulphite water; a solution of sodium sulphite (anhydrous) is prepared and used as follows: 0.5 Gm. sodium sulphite is dissolved in 50 cc. water in a flask of 100 cc. capacity, then 0.4 cc. concentrated sulphuric acid is added and sufficient water to make 100 cc. Of this solution, 4 cc. is used for each determination. The solution should be made up fresh daily.

Check of Permanent Standard: Introduce 10 cc. water and add 5 cc. concentrated sulphuric acid each into four 25 cc. calibrated test tubes. Add enough of the standard solution to contain 0.2, 0.1, 0.05 and 0.02 mg. of bismuth in different tubes. Cool the tubes and make up to the 25 cc. mark, using 4 cc. of sulphite water. Now add 5 cc. of the potassium iodide solution and match the permanent standards.

Estimation of Bismuth in Urine.—The volume of urine to be used depends on the bismuth content. A 50 or 25 cc. aliquot portion of a twenty-four hour sample is generally used. Human urine and rabbit urine are treated differently. To human urine in a Kjeldahl flask add 5 cc. concentrated sulphuric acid (H_2SO_4), 10 cc. concentrated nitric acid and 5 cc. of superoxol (30 per cent hydrogen peroxide) and proceed with combustion at once. With rabbit urine, add the sulphuric acid and superoxol and allow to stand overnight; then add nitric acid and proceed with heating. Add 2 drops of caprylic alcohol before heating. The flask is connected with the system of manifolds, and the suction is started before the heating is begun.

Boil on the hot plate until the nitric acid fumes have disappeared and the organic material is charred. Allow to cool; then, nitric acid (concentrated) may be added without sputtering. Nitric acid is added in quantities of from 2 to 3 cc. (conveniently done with an automatic filling buret of 500 cc. capacity), and the mixture is boiled until sulphur trioxide (SO_3) fumes are formed. Then more acid is added and the boiling is continued; this process is repeated until the residue remains water-clear. If any brown gaseous oxides of nitrogen are left in the flask, they must be driven off, since they are readily reduced and liberate iodine from potassium iodide by oxidation, thus affecting the color of the determination. This removal is accomplished by adding 10 cc. of water and boiling off the fumes

and water. Violent, prolonged heating also drives off the fumes, but there is danger of losing bismuth if the heating is too violent.

Transfer the residue (which should be not over 4 cc. in the Kjeldahl flask) to a 25 cc. calibrated Folin sugar tube, using as few small rinsings with water as possible. Before making up to 25 cc., allow to cool and use from 3 to 4 cc. of acidified sulphite for the last rinsing. Make up to exactly 25 cc. with water and add 5 cc. of the potassium iodide solution. The 5 cc. of potassium iodide solution is added to the solution whether or not the latter contains a precipitate. This colored (if bismuth is present), cloudy solution is centrifuged, and the supernatant clear solution is estimated as soon as possible against the permanent standards. The 4 cc. mark on the Folin sugar-tube represents the amount of sulphuric acid required before dilution is made. In case less than 4 cc. of concentrated sulphuric acid remains in the Kjeldahl flask after digestion, more should be added; if there is appreciably more, it should be boiled down to approximately 4 cc.

If a brown discoloration appears (iodine), making comparison impossible, return the whole of the solution to the Kjeldahl flask and boil off the iodine. Return to the test tube again, add more potassium iodide solution, and compare immediately with the permanent standard. Discoloration may appear within from four to five minutes with certain urines. The cause of slow discoloration is probably due to excess of sulphuric acid, and of rapid discoloration to the presence of nitric acid.

Estimation in Feces.—The material is used fresh or dried to constant weight at 100 C. and pulverized. From 1 to 2 Gm. is placed in a Kjeldhal flask used for estimation of bismuth in urine. Add 10 cc. concentrated sulphuric acid and 5 cc. superoxol and allow the whole to stand overnight with 2 drops of caprylic alcohol. Then 10 cc. concentrated nitric acid is added and the combustion started. After combustion is completed the residue is transferred to a calibrated test tube (25 cc.) and washed with 10 cc. saturated sodium oxalate solution. From here on the estimation proceeds as with urine.

Estimation in Blood and Tissues.—Up to 10 Gm. of fresh or preserved brain, blood, liver and kidney is used in the moist or dried state. Generally, however, 2 Gm. of guinea-pig, or 6 Gm. of rabbit, brains only is obtainable. Cerebrospinal fluid (from 20 to 50 cc.) is treated in the same way as human urine. The further treatment of the tissues and blood is the same as for feces, except that oxalate is omitted, since the content of iron is low and does not interfere.

The results of our experience with the method may be briefly summarized as follows. Fifty cubic centimeters of nitric acid is unnecessary and undesirable for the combustion of urines; the large quantity of nitric acid increases bumping, if anything. However, for feces, blood and tissues, a larger amount of nitric acid is necessary than for urine. Five cubic centimeters of concentrated sulphuric acid should be added to Leonard's standard in order to approach the conditions existing in the unknown. It was also found that sulphuric acid in this amount develops the color to the proper intensity. A discolored solution is not necessarily a ruined determination, especially if it is due to liberated iodine. Boiling off the iodine (by returning the material) in a Kjeldahl flask and redetermination is always feasible and should be done when the discoloration occurs. Acceleration of oxidation is accomplished by the addition of 30 per cent hydrogen droxide. Heating on hot plates, instead of over open flames, avoids bumping.

Good recoveries, amounting to from 94 to 100 per cent, have been obtained with quantities of from 0.015 to 0.4 mg. bismuth in 100 cc. of urine. With quantities of 0.01 mg. or less in 100 cc. of urine, only about 75 per cent was recovered, but 0.01 mg. and up to 0.2 mg. or more in 25 cc. of urine gave recoveries of from

93 to 100 per cent. There is no object in going below 0.01 mg. Good recoveries (96 to 100 per cent) were obtained with from 0.08 to 0.2 mg. in 250 cc. of urine, but there is no object in using larger volumes of urine when smaller volumes of 100 cc. give equally good recoveries. Large volumes of urine (500 to 1,000 cc.) containing quantities of bismuth of from 0.01 to 0.4 mg. gave incomplete recoveries and should not be used. One hundred cubic centimeter portions of urinary samples throughout the excretory period, therefore, can be depended on to give a complete recovery of bismuth with our modification of Leonard's method, and at the peak of the curve, when the urine contains large quantities of bismuth specimens, from 25 to 50 cc. are sufficient. More recent studies of the method have indicated that from 25 to 50 cc. of urine can be used satisfactorily throughout, this being true especially with urine after the administration of water-soluble and glycol-soluble bismuth compounds.

Leonard advised the use of citric acid (10 per cent), when iron was present, since otherwise inconsistent results were obtained. Our experience with controls has shown that iron, in amounts to be expected in 25 Gm. samples of blood or tissues, had no effect on the color. In any case, the citric ion would probably not hold iron ions in citric combination in solution in the presence of the high degree of acidity used in the method. In feces, however, variable and comparatively large amounts of iron may occur; therefore, oxalate is used here, as suggested by others.

RESULTS

This report is limited to the results on urinary and fecal excretion of bismuth after intramuscular injection of the metal. Reports on the other cationic products, on a comparative summary of these, and on anionic bismuth will follow in due course.

Urinary Excretion.—The excretion of urine was studied in nine subjects. The total dosage of the metal ranged from 0.15 to 2.1 Gm. in from one to fourteen injections. A summary of the data on dosage, diagnosis and excretion is presented in the accompanying table, on the daily urinary excretion in chart 1 and on total excretion in chart 2.

Daily Excretion (Chart 1): The daily excretion fluctuated considerably in different subjects. The curves show that there were gradual increases after injection regardless of whether the dosage was single or multiple; there were definite peaks, or maxima, gradual slopes and small persistent excretions over long periods.

Although bismuth was generally detectable on the first day after injection, the quantities present were not significant until the second to third day, regardless of the dose. After the third day the excretion mounted steadily, even after single doses (St, Cs). This suggested a slow but increasing liberation from the depot, probably due to the comparatively low solubility of the metal. The peak of excretion was reached in from six to twenty-eight days, the urine increasing roughly with the dosage. That is, after one dose (St), it was reached on the sixth day after injection, and after two doses (Na and We), at the end of nine and seven days; after four doses, or 0.6 Gm., it was reached at the end of

twenty-eight days in Ih, but when the same quantity was given in one dose (Cs), the peak was reached at the end of nine days. The latter may have been due to the higher concentration of the metal locally, and therefore to correspondingly greater absorption. The data on Ce, who received 0.6 Gm. in four injections, were incomplete, but the peak was not reached at the end of twelve days, thus indicating a tendency similar to that in Ih. The largest doses used showed a definite delay in the time of maximum daily (peak) excretion; after 1.4 Gm., it was more than eleven days; after 1.6 Gm., fifteen days; and after 2.8 Gm., twenty days. The results leave no doubt that excretion continued to increase for some time after stoppage of administration, thus suggesting a steadily increasing solubility of the metal and progressive saturation of the tissues.

*Excretion of Bismuth after Bismuth Metal**

Patient	Sex†	Diagnosis	Total Dosage of Bismuth Administered: As the Compound, Gm.	Total Dosage of Bismuth Administered: As Bi Ion, Gm.	Number of Injections	Percentage of Bismuth Excreted in Urine	Peak of Excretion: Days After Administration	Comment
St	♂	Neurosis.....	0.2	0.15	1	0.4 (11)‡	6	Complete
Na	♂	Neurosis.....	0.4	0.30	2	1.38 (11)	9	Incomplete
We	♀	Cerebrospinal syphilis	0.4	0.30	2	0.83 (12)	7	Incomplete
Ih	♀	Cerebrospinal syphilis	0.8	0.60	4	31.33 (101; interrupted)	28	Incomplete and irregular
Ce	♂	Cerebrospinal syphilis	0.8	0.60	4	3.33 (11)	7(?)	Incomplete
Cs	♂	Cerebrospinal syphilis	0.8	0.60	1	54.60 (89)	9	Complete
An	♂	Cerebrospinal syphilis	1.4	1.05	7	1.37 (13)	11	Incomplete
Ve	♂	Cerebrospinal syphilis	1.6	1.20	8	31.30 (90)	15	Complete
Hn	♂	Cerebrospinal syphilis	2.8	2.10	14#	10.00 (30)	20	Incomplete and irregular

* Bismuth metal contained 73 per cent bismuth by analysis, in 6 per cent dextrose solution.
† In this column, ♂ indicates male; ♀, female.
‡ Data in parentheses refer to number of days after administration.
# Excretion after the two last doses not included, since the data were too incomplete.

The maximum daily quantities of bismuth excreted were as follows, according to increasing total doses: 0.2 mg. after 0.15 Gm. (St); 0.86 and 0.55 mg. after 0.3 Gm. (Na and We); 5.6, 11 and 2.6 mg. after 0.6 Gm. (Ih, Cs and Ce, incomplete); 2.4 mg. after 1.05 Gm. (An, incomplete); 23.6 mg. after 1.2 Gm. (Ve), and 15 mg. after 2.1 Gm. (Hn). There was thus a tendency to increased maximum output with increasing dosage, out of proportion to the magnitude of the dose.

That is, doubling the dose more than doubled the maximum daily output of bismuth in both subjects (Na and We) receiving these doses; multiplying the dose four times (Ih, Cs and Ce) increased the maximum output from thirteen to fifty-five times; multiplying it eight times (Ve) increased the maximum excretion a hundred and eighteen times, and multiplying it fourteen times (Hn) increased the excretion seventy-five times. It is true that the urinary excretion after the smallest dose of 0.15

Gm., on which these comparisons were based, was not so accurate as after the higher doses, owing to the small quantities of bismuth excreted. However, the same tendency was seen when the excretion after the highest dosage was compared with some lower dose. For instance, the maximum daily outputs after doses of 0.6 Gm. in subjects Ih and Cs were 5.6 and 11 mg., as compared with 23.6 mg. after 1.2 Gm. (Ve); in other words, the increase in output was from two to four times after double the dose. After a dose of three and a half times (Hn) that in Ih and Cs, the maximum output was from one and one-third to two and seven-

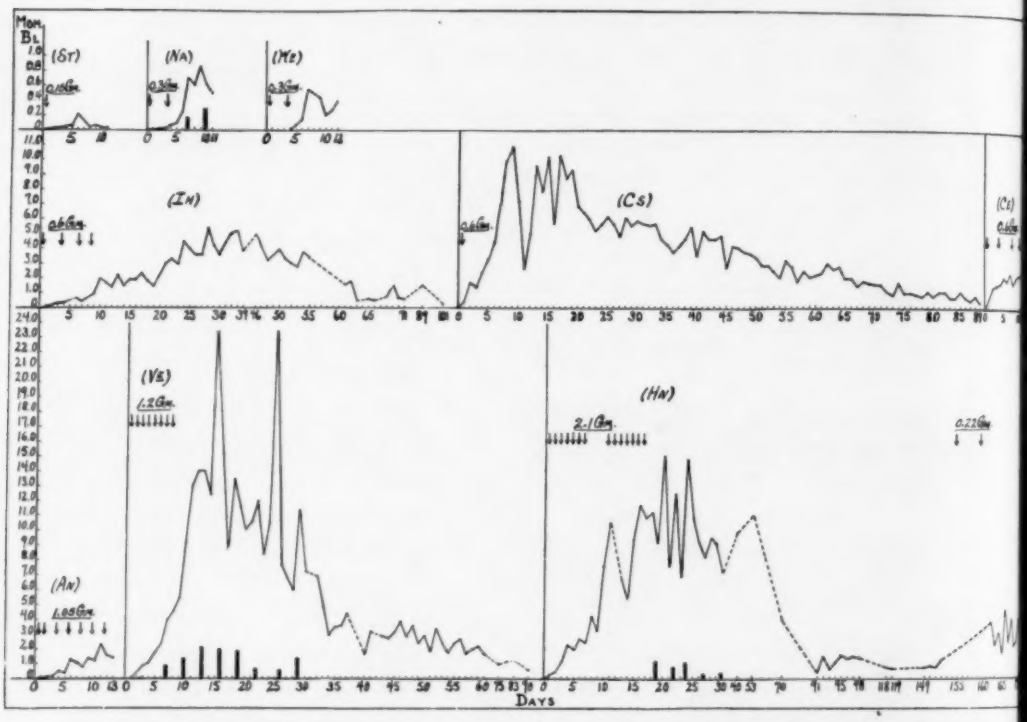

Chart 1.—Daily excretion of bismuth after injection of bismuth metal in different subjects. The arrow indicates grams of bismuth injected intramuscularly. The continuous line indicates excretion in urine; the black column that in the feces.

tenths times, and therefore not proportional to the increase in dosage. The latter dosage was, of course, high, and it is possible that other factors entered which affected the excretion, such as diminished renal functional efficiency.

The cause of the increased output of bismuth, out of proportion to the increases in dosage, might be the diuresis caused by the metal. Increases in urinary output were demonstrated under controlled condi-

tions as reported in a previous paper,[1] and increases in urinary output were again noted in the present work. However, the fluid intake was not controlled, and therefore the results on diuresis were not accurate, and the urinary outputs have not been included in the figures. The significance of the increased excretion of bismuth out of proportion to the increase in dosage may be important for the use of the metal in treatment for syphilis. It indicates a wastage of bismuth as the result of intensified medication, since the bismuth which is being removed could be better put to use for antisyphilitic action in the body. This suggests that continued medication with small doses would be better than intensive medication which attempts rapid saturation. The latter undoubtedly increases the tissue concentration of bismuth, but once the saturation is reached, further medication would tend to reduce the tissue concentration by increasing excretion. The increased excretion suggests that accumulation is not necessarily increased in proportion to dosage, but, on the contrary, the rate and degree of accumulation would be decreased; i. e., the absolute amount of bismuth in the body would be less than might be expected from the increased dosage.

Duration of Excretion: When the daily urinary excretion reached a quantity of 0.5 mg. the experiment was generally stopped, although it was evident that the excretion of minute quantities would continue over longer periods. After the single dose of 0.15 Gm. in St, the urinary excretion appeared to have stopped at the end of eleven days after administration. With doses of 0.3 Gm. (Na and We) the results were too incomplete to warrant a statement. After doses of 0.6 Gm. in Ih and Cs, the daily minimum of 0.5 mg. was reached at the end of a hundred and one and eighty-nine days, respectively; after 1.2 Gm. (Ve), at the end of ninety days, and after 2.1 Gm. (Hn), at the end of about a hundred and fifty-two days. The excretion was incomplete in An, who received 1.05 Gm.

These results indicate that liberation of definite quantities of bismuth from the muscle-depot may be expected for at least three months following injection of two or more single doses of 0.15 Gm. each of the metal. They agree with the results of roentgen observations of depots in that absorption is slow and prolonged, shadows at the site of injection having been observed for a year and even longer by one of us (M). However, shadows in the x-ray picture may be misleading in the estimation of absorption, for our excretory results leave no doubt that there is definite, continuous and prolonged, though variable, absorption. Judging from roentgen studies of muscle depots in patients, Cole, Farmer and Miskdjian[7] stated the belief there was no absorption at the end of

7. Cole, H. N.; Farmer, H. L., and Miskdjian, H.: Intramuscular Absorption of Insoluble Bismuth Compounds as Revealed by Roentgen Ray, Arch. Dermat. & Syph. **13**:219 (Feb.) 1926.

twenty-two weeks after injection of the metal, but Beinhauer and Jacob,[8] using the same method, claimed complete absorption at the end of five weeks. It must be admitted that judgment of absorption of the metal on the basis of shadows in the x-ray picture is difficult, whereas excretory data give at least some quantitative ideas of the onset, degree, duration and amount of absorption.

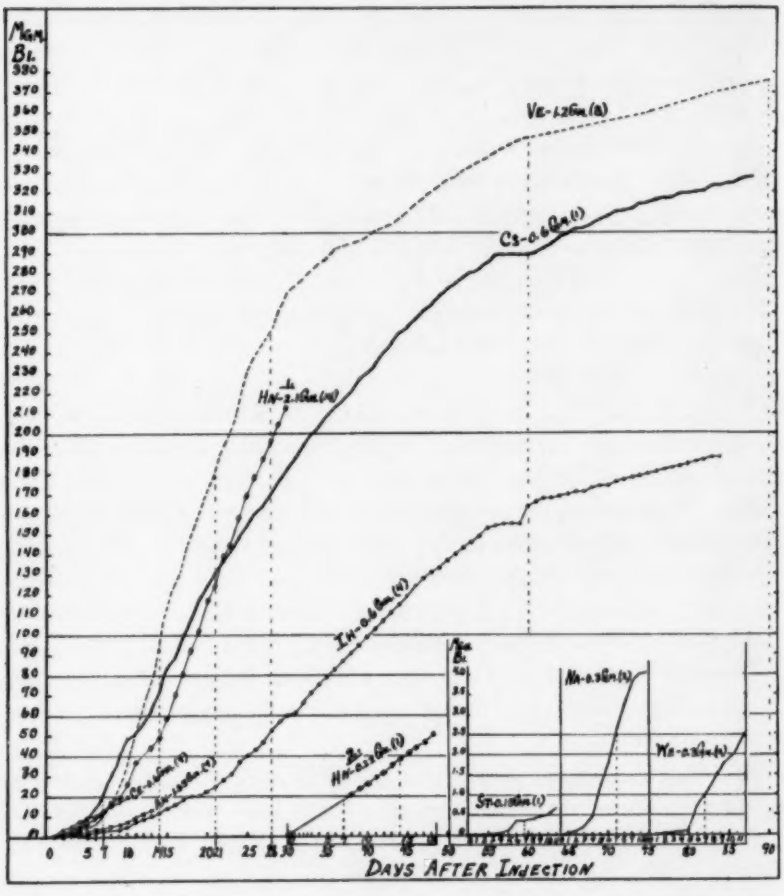

Chart 2.—Total urinary excretion of bismuth after single and repeated doses of bismuth metal. *St* received one dose and *Na* and *We*, two doses; the remaining subjects received more than two doses as indicated in the table.

Total Urinary Excretion (Table and Chart 2): The total urinary excretion was extremely variable and comparatively small in the majority of subjects, although in only three subjects, namely, St, Cs and Ve, did the results approach completion. These subjects received 0.15, 0.6 and

8. Beinhauer and Jacob: Am. J. Syph. **9**:213, 1925.

1.2 Gm. of bismuth, and the total excretion was 0.4, 54.6 and 31.3 per cent, respectively, of the total administered. The periods of observation were nearly the same in Cs and Ve, namely, eighty-nine and ninety days, but the total bismuth excreted in the urine of Cs was 23 per cent higher than that in Ve, who received double the total dose. The periods of observation were also comparable in St, Na, We, Ce and An, namely eleven, eleven, twelve, eleven and thirteen days, respectively; yet the total excretion was variable, i. e., 0.4, 1.38, 0.83, 3.33 and 1.37 per cent, rspectively, and was not proportional to the dosage which increased from 0.15 to 1.05 Gm. in the same order of the subjects. On the contrary, the total excretion appeared to decrease with the increase in dosage; this can be seen by comparing the percentage excretion shown in the table and the absolute excretion plotted in chart 2 during the same periods. For instance, the total excretion at the end of eleven days after 0.3 Gm. in Na was 1.38, and at the end of thirteen days after 1.05 Gm. (three and a half times greater) it was the same, i. e., 1.37 per cent; at the end of eighty-nine days after 0.6 Gm. in Cs, the total bismuth excreted was 54.6 per cent, and at the end of ninety days after 1.2 Gm. (double the dose) in Ve, it was 31.3 per cent; at the end of hundred and one days after 0.6 Gm. in Ih the total excreted was 31.33 per cent, and it was the same (31.3 per cent) at the end of ninety days after 1.2 Gm. in Ve.

These comparisons indicate definitely that increasing doses of bismuth metal are associated with a smaller excretion of the bismuth in the urine. A similar, though not invariable, tendency is seen when the excretion is compared from week to week in different subjects; this is shown in chart 2 in which the weekly segments are indicated by vertical dotted lines dropped to the abscissa. The decreases are seen by comparing the curves for Ve who received 1.2 Gm. and Hn [1], who received 2.1 Gm.; for Ce and Cs each of whom received 0.6 Gm., and for An who received 1.05 Gm., but not when compared with Ih who received 0.6 Gm. but in whom the results differed from those for Cs and C who received the same dose. Subjects St, Na, We and Hn [2] who received the smallest doses (from 0.15 to 0.3 Gm.) do not show the differences shown by the subjects receiving the highest doses, possibly for a reason which may explain the effects of the highest doses. An injury to renal functional efficiency, which is conceivable with the highest doses, could explain the decreased total excretion. For instance, Leonard,[9] who used nephrotoxic doses of bismuth metal (185, 400 and 535 mg. per kilogram of body weight) in three rabbits, recovered in the urine only 19.2, 2.22 and 1.17 per cent of the total quantities administered. Neither these decreases nor the variable and incomplete urinary excretion of the bismuth in general are explained by a greater fecal excretion, since this is much less

9. Leonard, C. S.: J. Pharmacol. & Exper. Therap. **28**:121, 1926.

than the urinary excretion. It will be indicated presently that the feces, although not extensively studied by us, remove only about from one fourth to one eighth of the bismuth. Probably the bismuth remains in the body, partly encapsulated at the site of injection, as suggested from shadows in the x-ray picture, and partly stored in the abdominal viscera. This agrees with results on absorption and distribution recorded in the literature. Because the kidney contains the highest amount of bismuth per gram of any organ in the body, it is the chief organ of excretion.

Ratio of Excretion in Feces and Urine.—It was not practicable to determine the daily excretion in feces in all patients, but estimations were made on five subjects at different times, in the beginning, at the peak and at the end of excretion. The daily results on three subjects (Na, Ve and Hn) are shown in chart 1. Additional results were obtained in two other subjects. All the results on the metal and the other bismuth preparations studied were put together in the form of a graph, which will be presented in a separate summary report. The graph was constructed so as to indicate ratios of daily outputs of bismuth in feces, assigned the value of 1 and represented as solid blocks throughout, to the daily bismuth output in urine indicated by hatched areas, the results in different subjects being arranged according to increasing doses of bismuth. Here only the ratios on metal will be summarized.

The ratios after total doses of from 0.3 to 2.1 Gm. ranged from 1:2 to 1:34, the median being 1:8; that is, about eight times as much bismuth was excreted in the urine as in the feces. The result agrees generally with the results obtained on insoluble preparations of bismuth reported by Engelhardt[10] and by Lomholt,[11] who reported ratios from 1:7 to 1:3. Accordingly, there is no doubt that the main channel for the excretion of bismuth after therapeutic doses of the metal is the urinary tract.

CONCLUSIONS

1. The clinical excretion of bismuth after the intramuscular injection of bismuth metal in doses of from 0.15 to 2.1 Gm. was found to be slow, irregular, prolonged and incomplete.

2. The daily excretion fluctuated considerably in different subjects, being characterized by a gradual increase, which reached a peak or maximum in from six to twenty-eight days after administration, the time increasing proportionately with the dosage and a gradual decrease occurring until the output reached about 0.5 mg. a day. The duration of

10. Engelhardt: Arch. f. Dermat. u. Syph. **156**:1, 1928.

11. Lomholt, S.: Biochem. J. **18**:693, 1924; Ann. de derm. et syph. **6**:170, 1925; Retention of Bismuth in Organism in Treatment of Syphilis, Arch. Dermat. & Syph. **19**:891 (June) 1929; Brit. M. J. **2**:887, 1929.

excretion after two or more single doses persisted for at least three months, thus agreeing generally with roentgen studies of muscle depots.

3. The maximum daily excretion increased out of proportion to the increase in dosage in different subjects, indicating that accumulation of bismuth in the tissues would not necessarily increase in proportion to dosage. The desirability of using small repeated doses instead of intensive medication for maintaining a uniform saturation of the tissues in the treatment for syphilis is suggested.

4. The total urinary excretion was extremely variable and comparatively small. In the three subjects in whom this was definitely ascertained, it amounted to 0.4, 54.6 and 31.3 per cent, respectively, of the total doses administered, namely, 0.15, 0.6 and 1.2 Gm. The total excretion decreased with increasing doses in different subjects, according to the percentage of the total administered and also absolute amounts during comparable periods. This decrease was not due to escape of bismuth into the feces, since the excretion in feces was too small over a considerable range of dosage in different persons. The median excretion in urine was about eight times that in the feces, thus indicating that the kidney was the main organ of excretion, a result which correlates with the high selectivity of bismuth for this organ. The bismuth unaccounted for remains in part as a depot at the site of injection, from which it is slowly liberated, a part of the latter being stored in viscera and the whole being excreted from the body slowly in traces over periods of months.

5. Contrary to impressions from roentgen studies of muscle depots, the results obtained show that bismuth metal injected intramuscularly is absorbed, since traces of bismuth in urine are demonstrable on the day following injection, the quantities being definite on the second to third day, and bismuth persisting in urine during at least three months after two or more single doses of 0.15 Gm. It is undesirable to attempt rapid saturation with high doses, since total doses of from 0.6 Gm. to 2.1 Gm. of bismuth metal tend to decrease the absolute total output despite a tendency to increased maximum daily output out of proportion to the increase in dosage.

A DIAGNOSIS FILE FOR SYPHILIS CLINICS*

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The study of syphilitic infection in the human being involves the following up of patients' conditions over long periods of time. The clinic is in many ways analogous to the experimental laboratory; the patient can sometimes tell one as much as the examination of a rabbit shows, even though a planned experiment is harder to achieve. A large amount of clinical material, no matter how carefully the patients are followed, is, however, of little value for study and research purposes unless it can be readily classified and made available to the investigator. The diagnosis file in use in the Syphilis Clinic of the Johns Hopkins Hospital has proved to be of so much service in this respect that I am publishing a general outline of it, with the thought that it may be of equal value, subject to local modification, to other clinics handling large numbers of patients with syphilis.

The elaboration of this diagnosis file represents a gradual growth over a period of several years' trial. The credit for evolving it belongs to a number of physicians who have worked with it in the clinic, and to others outside Johns Hopkins Hospital who have been kind enough to make criticisms and suggestions. In its present form, it has been in use for about seven years. At first sight it appears to be complex, but actually it is simple to operate, and provides for elaborate cross-indexing. The file headings are largely self-explanatory, so that a brief discussion will be limited to the method of operating the system.

When a new patient is admitted to the clinic, the secretary makes out two filing cards, 3 by 5 inches, placing at the top of each the patient's history number, name, race, age, sex and date of admission. These cards are filed together, to be rejoined to the patient's record at a subsequent staff history meeting.

As new patients are assigned to physicians for examination, these data (name, history number, etc.) are entered in a large daybook. In this book are also recorded, in red ink, similar identifying data for any former patient who has had a new development in his case, as for example, a clinical or Wassermann relapse, an arsphenamine reaction, a spinal puncture with positive signs in the fluid, a complete reexamination, or cessation of treatment (probation), etc. The daybook serves as a guide to the secretary in presenting at the history meeting the

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* From the Syphilis Division of the Medical Clinic, the Johns Hopkins Hospital.

records of patients whose conditions are as yet undiagnosed, or to whose diagnosis cards new data are to be added.

History meetings of the staff are held once a week and each physician is responsible for the diagnosis of his own cases. His patients' records are presented to him for diagnosis one or two weeks after admission, which allows time for the performance and reporting of desired laboratory work. If the assembled data are still too incomplete to permit an accurate diagnosis, the physician indicates this by writing (in pencil) "deferred" in one corner of each of the filing cards, and beside the patient's name in the daybook. This makes it possible for the secretary to present such histories weekly until a diagnosis can be made. If the clinical and laboratory data permit a diagnosis, this is entered by the physician on each of the two filing cards, and in the daybook, using the nomenclature given here. The history and cards are then returned to the secretary, who files one card alphabetically by name and the other by diagnosis, and who transcribes the correct diagnosis into an open space left at the top of the first history sheet.

In order to simplify filing, and to avoid the misinterpretation of medical terminology or abbreviations by lay secretaries, each diagnosis heading has a corresponding letter or number, usually both, as appears in the appended table. At the time of the history meeting, the physician writes on the filing card not only the diagnosis but also the appropriate letter and number. Thus the card of a patient with seropositive primary syphilis shows not only these words, but also in the upper left hand corner, the symbol A 2. The secretary then files the card in the compartment A 2 of the file without reference to what may be written on it. If there is more than one diagnosis, as is often the case, the secretary makes out as many duplicate cards as are necessary for the file. For example, a patient with associated gummas of the skin, periostitis of the tibia and aortitis, is diagnosed as D 1, D 4 *a* and D 6 *a* (syphilis tertiary, cutaneous, skeletal and cardiovascular). Four filing cards are required, one to be filed alphabetically and one each in the compartments D 1, D4 *a* and D 6 *a*. If this patient's wife has also been examined and found to be syphilitic, another card is necessary for the original patient (and also for his wife) diagnosed and filed as G 1, with the wife's history number and diagnosis entered on the husband's card, and vice versa.

If, subsequently, this patient is treated and develops arsphenamine jaundice, his name and history number are reentered in the daybook, and his case record comes up at history meeting for rediagnosis. At this time, all the cards already in the diagnosis file for him are pulled out and attached to his history. The new fact (K 2) is entered on each, and an extra card is made out to care for the new diagnosis. In the

same way any new fact which adds to or alters the original diagnosis is added to the cards at subsequent history meetings.

The file permits one to assemble for study with a minimum of search and effort, any desired group of cases. One can assemble all the patients with Charcot joints, with arsphenamine dermatitis, with neurorecurrences, with almost any conceivable manifestation of syphilis. The progress of syphilitic infection can be followed with equal ease; for example, the records of all patients with seronegative primary syphilis who were adequately treated (to the point of being placed on probation) can be assembled in a few moments.

The diagnosis file now includes records of about 15,000 syphilitic patients, and constitutes an immensely valuable mass of clinical material for research and teaching purposes. In their present form, the file headings given here will of necessity be modified by others who attempt to use them. It is hoped, however, that the general scheme and the method of use will be of interest to those who deal with large numbers of patients with syphilis.

The file headings are as follows:

A—Syphilis Primary (use this diagnosis when the patient has primary syphilis only, before the development of secondary lesions)

1. Seronegative (blood Wassermann before any treatment is negative; the dark-field must be positive)
2. Seropositive (blood Wassermann before any treatment shows from 25 to 100 per cent fixation)
3. Doubtful (to be used only if a definite diagnosis cannot be made; usually to be cross-indexed with chancroid)
4. Extragenital (state location; cross index with seronegative or seropositive—A 1 or A 2)
5. Reinfection (cross index with A 1 or A 2)
6. Reinfection doubtful (to be used when confusion arises between reinfection and relapse; cross index with syphilis secondary recurrent)

B—Syphilis Secondary

1. Cutaneous (describe rash as macular, papular, pustular, annular, follicular, etc.)
2. Mucosal (to be used only when no skin lesions are present, and the sole manifestations of secondary syphilis are buccal or genital moist lesions—papulo-erosive mucous patches, moist papules, condylomata lata, etc.)
3. Alopecia (use this and following headings under "B" in addition to B 1, when this or other lesions coexist with cutaneous lesions)
4. Eye (specify lesion, as iritis, uveitis, neuroretinitis, etc.)
5. Cranial nerve (cross index with J 3 *a* or *b*—untreated early neurosyphilis)
6. Pigmentary (leukoderma colli, or other pigmentary skin lesions)
7. Skeletal (specify periositis, arthritis, hydrarthrosis, etc., and mention site)
8. Visceral (as syphilitic nephritis, acute aortitis, noteworthy tachycardia, etc.)
9. Seronegative (to be used if blood Wassermann before treatment is negative, or shows less than 100 per cent fixation. Cross index with manifestations)

10. D'emblée (to be used only in the case of males [not females] who have secondary syphilis with no history of and no discoverable trace of a previous chancre)
11. Reinfection (cross index with manifestations)
12. Wassermann and general glandular enlargement (to be used for patients with seropositive primary syphilis, whose only evidence of generalization of the virus is generalized lymphadenopathy)
13. Malignant (ulcerative or rupial syphilids)
14. Delayed (use if interval between appearance of primary and secondary syphilis, is more than three months. Cross index with manifestations)
15. Secondary and tattooing (when syphilids appear in tattoo marks)

C—Syphilis Secondary Recurrent (use only when these lesions represent a relapse following an earlier secondary syphilis, treated or untreated)

1. Cutaneous (describe rash)
2. Mucosal (use similarly to B 2)
3. Eye (specify lesions)
4. Pigmentary

D—Syphilis Tertiary

1. Cutaneous (specify as nodular, nodulo-ulcerative, palmar, plantar, solitary or multiple gummas, etc.; also give location)
2. Mucosal (excluding leukoplakia buccalis for which see E 10, also excluding gummas of pharynx or larynx for which see D 11. Includes tongue and male and female genitalia)
3. Pigmentary
4. Skeletal (give location)
   (*a*) Periostitis
   (*b*) Osteomyelitis
   (*c*) Osteitis
   (*d*) Arthritis
5. Visceral (specify type and site; includes all viscera except heart and large vessels, for which see D 6)
6. Cardiovascular
   (*a*) Aortitis
   (*b*) Angina pectoris
   (*c*) Aortic regurgitation
   (*d*) Aneurysm (give location)
   (*e*) Myocarditis
   (*f*) Endarteritis peripheral
   (*g*) Phlebitis
   (*h*) Myocardial failure (cross index with type of lesion precipitating failure)
7. Eye (specify lesion)
8. Fever
9. Muscle and tendon (includes gummas, juxta-articular nodules)
10. Gland (gummatous adenitis, proved by therapeutic test)
11. Upper respiratory tract (includes nasal septum, pharynx, larynx, trachea, bronchi. Specify type of lesion and location)

E—Syphilis Latent

1. History early (to be used when only evidence of syphilis is a definite history of infection of less than two years' duration. Blood Wassermann and cerebrospinal fluid must be negative. Specify treated or untreated)
2. History late (same as E 1, but infection is of more than two years' duration)
3. Wassermann early (to be used when only manifestation of syphilis is a positive blood Wassermann test, infection of less than two years' duration. Cerebrospinal fluid negative, or not yet examined. If cerebrospinal fluid is positive remove case from this category and file under J 1).
4. Wassermann late (same as E 3, but infection is of more than two years' duration)
5. Secondary anemia (these headings are to be cross-indexed with E 1-4, and are included for purposes of study of these interesting symptoms, so frequently associated with an otherwise latent syphilis)
6. Neurasthenia
7. Bone and joint symptoms without objective signs
8. Gastro-intestinal symptoms not otherwise explained
9. Congenital child (to be used in the case of a woman who has no symptoms or signs of syphilis, blood Wassermann positive or negative, but who has had a child with congenital syphilis)
10. Leukoplakia buccalis

F—Syphilis and Pregnancy (cross index with type of syphilis, as B 1 and F, E 4 and F, etc.)

G—Family or Contact Investigation (used to indicate results of examinations of contacts or members of family of syphilitic patients. To be added to the patient's own diagnosis)

1. Investigation positive (contact, partner or child has syphilis; indicating type)
2. Investigation negative (contact, partner, etc., examined and found to be nonsyphilitic)
3. Investigation results inconclusive (if examination is incomplete)
4. Investigation made elsewhere, results known

H—Syphilis Congenital

1. Wassermann (when only evidence of congenital syphilis is a positive blood Wassermann)
2. Ear (inner ear deafness)
3. Eye (specify interstitial keratitis, chorioretinitis, etc.)
4. Central nervous system (specify type, as juvenile paresis, etc.; cross index with appropriate type under J)
5. Gummatous (specify lesion and part involved, and cross index with D 1, 2, 9, 10 or 11)
6. Skeletal (specify lesion and part involved, and cross index with D 4)
7. Visceral (cross index with D 5)
8. Stigmas (when no active lesions are present, and diagnosis rests on skeletal or dental stigmas, etc.)

9. Constitutional inferiority
10. Diagnosis questionable (for the interesting cases in which a decision cannot be made between acquired and hereditary syphilis. Cross index with appropriate manifestation).
11. Upper respiratory tract (see and cross index with D 11)
12. Cutaneous (for the acute cutaneous manifestations of infantile congenital syphilis. Specify type)

J—Syphilis of the Central Nervous System

1. Asymptomatic early (when the only evidence of neuraxis involvement is a positive spinal fluid examination, infection of less than two years' duration. Cross index with approprite subdivision of A, B, C or E. Specify spinal fluid type, as group I, II, or III [1])
2. Asymptomatic late (same as J 1, except infection is of more than two years' duration. Cross index with appropriate subdivision of D or E)
3. Early (to be used only when patient has not been previously treated)
   (*a*) acute syphilitic meningitis
   (*b*) Cranial nerve
   (*c*) Vascular (cerebral hemorrhage or thrombosis)
   (*d*) Neurorecurrence (to be used when symptoms or signs of neuraxis involvement, usually acute syphilitic meningitis, with or without cranial nerve paralysis, occur in a patient with early syphilis who has been inadequately treated, and has lapsed from treatment.[2] Cross index with appropriate subdivision of A or B, but do not cross index with J 3 *a*, *B* or *c*)
4. General paresis early
5. General paresis advanced
   (*a*) Acute (maniacal or "galloping" paresis)
6. General paresis juvenile
7. Tabes dorsalis early
8. Tabes dorsalis advanced
9. Tabes dorsalis with optic atrophy
10. Tabes dorsalis with Charcot joint
11. Tabes dorsalis juvenile.
12. Taboparesis
13. Vascular
   (*a*) Hemiparesis
   (*b*) Hemiplegia
   (*c*) Aphasia
   (*d*) Monoplegia
14. Spastic paraplegia (including Erb's spinal spastic syphilitic paraplegia)
15. Chronic anterior poliomyelitis
16. Combined system disease

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1. Moore, J. E.: Studies in Asymptomatic Neurosyphilis: II. The Classification, Treatment and Prognosis of Early Asymptomatic Neuro-Syphilis, Bull. Johns Hopkins Hosp. **33**:231, 1922.

2. Moore, J. E.: The Relation of Neurorecurrences to Late Syphilis, Arch. Neurol. & Psychiat. **21**:117 (Jan.) 1929.

17. Unclassified meningovascular
    (*a*) General group (to be used when more exact neurologic classification is impossible)
    (*b*) Optic atrophy (for all types of primary or secondary optic atrophy except that associated with tabes dorsalis)
    (*c*) Eighth nerve deafness
    (*d*) Other cranial nerve involvement
    (*e*) Cerebrospinal fluid paretic formula (cross index with other subdivisions of J 17, but not with other headings under J)
    (*f*) Multiple lesions
18. Epilepsy (including all cases in which syphilis may be suspected as the etiologic factor in epilepsy)
19. Cerebrospinal fluid negative (cross index with appropriate subdivision of J)
20. Gumma of brain

K—Treatment Reactions (minor reactions are not included in the diagnosis file)

1. Arsphenamine jaundice (including acute yellow atrophy)
2. Arsphenamine dermatitis (specify type as scarlatiniform, macular, erythematous, papular, vesicular, exfoliative, etc.)
3. Arsphenamine blood dyscrasias
4. Arsphenamine sudden death (cross index with V—dead)
5. Bismuth poisoning
6. Tryparsamide reaction (including visual disturbance, jaundice, dermatitis)
7. Mercurial poisoning (noteworthy. Do not include mild stomatitis, enteritis, etc.)
8. Iodism (severe)
9. Herxheimer reaction (describe and cross index if necessary)
10. Acute nephritis (specify causative drug)
11. Reaction to intraspinous treatment

L—Treatment Failures

1. Dead (only if death is due to syphilis or treatment, otherwise see item V, with which this should be cross-indexed)
2. Wassermann fast (to be used if blood Wassermann remains persistently positive after one year's treatment. Cross index with original manifestation)
3. Wassermann recurrence (when only evidence of relapse is a recurrent positive Wassermann test)
4. Clinical recurrence (specify type and cross index with type of lesion)
5. Syphilitic child (when the only clinical evidence of relapse is the birth of a syphilitic baby)
6. Lesions resistant (when lesions fail to heal under one or several forms of antisyphilitic treatment [3])
7. Recurrent positive cerebrospinal fluid

M—Other Diseases Complicating Syphilis or Its Treatment (only those which have a direct bearing on the outcome of syphilitic therapy are listed, others are grouped under M 10)

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3. Moore, J. E., and Robinson, H. M.: The Question of Arsphenamine-Resistant Syphilis, Arch. Dermat. & Syph. **21**:32 (Jan.) 1930.

1. Arteriosclerosis
2. Nephritis (acute, subacute or chronic)
3. Rheumatic heart disease
4. Tuberculosis
   (*a*) Pulmonary (specify degree of activity, as incipient, moderately advanced, advanced)
   (*b*) Other (osseous, genito-urinary, etc.)
5. Diabetes mellitus
6. Malaria
7. Hypotension
8. Hypertension
9. Diseases whose relationship to syphilis is not determined
10. Other diseases

N—Treatment Successes

1. Probation (when treatment is stopped)
2. Cure or arrest (to be used only after one year's probation, and after complete reexamination)

O—Nonsyphilitic

1. False positive Wassermann
2. Chancroid
3. Granuloma inguinale (use this heading also when granuloma inguinale complicates syphilis)
4. Syphilophobia
5. All other diseases

P—Syphilis Suspect, Not Proved (when the diagnosis of syphilis is strongly suggested but not proved because of incomplete examination)

Q—Syphilis Proved, Stage Undetermined (when the diagnosis of syphilis can be definitely made but examination is too incomplete to permit more accurate classification)

R—Undiagnosed (when study is too incomplete to permit any diagnosis)

T—Reexamined, Original Diagnosis Unchanged (to be used when complete periodic reexamination fails to add any new facts to original diagnosis)

U—Syphilis Proved, Diagnosed Elsewhere, not Examined in this Department (diagnosis made in another clinic or hospital, or in a different department of this hospital)

V—Dead

1. Autopsy obtained
2. Death caused by syphilis

W—Noteworthy Cases (any remarkable case of value for teaching, research or reporting, may be indexed here)

X—Syphilis Treated with Malaria or Other Form of Fever Therapy

NOTE.—If a patient with any type of syphilis has been previously treated elsewhere, the word "treated" should be added to the diagnosis. Thus, a person with undoubted cutaneous gummas four years ago, treated elsewhere, who shows on admission unmistakable scars of the original lesions, should be diagnosed as D 1, syphilis tertiary cutaneous treated, and not as E 3 or 4, syphilis latent.

THE HEMOCLASTIC COMPLEMENT-FIXATION TEST IN SYPHILIS*

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Serologic evidence of syphilis is based on the presence of what, for lack of a better term, is called "reagin," and while it is accepted that its presence is evidence of interaction between the invading spirochetes and the reacting tissues, exact information as to the nature of reagin is so far lacking.

The occurrence of negative serologic reactions in the presence of known syphilis may be accounted for by: (1) the absence of interaction between the spirochetes and the tissues, as in latent or dormant syphilis in which the spirochetes are safely enclosed by a wall of fibrous tissue and their action on the tissues is reduced to a minimum; (2) the fact that the interaction between the spirochetes and the tissues has not been exerted for a sufficient time to allow the accumulation of reagin in amounts detectable by the serologic procedure utilized.

Banciu [1] suggested another possibility, namely, that the formed elements of the blood are capable of absorbing reagin, from which it follows that the occurrence of negative serologic reactions in syphilis results, not from the absence of reagin in detectable amounts, but from the fact that it is bound by the blood corpuscles and not free in that part of the blood subjected to examination, the serum.

Supporting this assumption, he cited the following experiments:

1. If thoroughly washed erythrocytes from a nonsyphilitic person are placed in contact with a strongly positive serum for five to six hours at 37 C., the reaction obtained with the serum afterward is weaker than before, which suggests the absorption of reagin by the corpuscles.

2. When the corpuscles thus treated are, after thorough washing, mechanically hemolyzed in normal physiologic solution of sodium chloride, a positive reaction may be obtained, which corroborates the theory of the absorption of reagin by the corpuscles.

Banciu's experiment suggests that both red cells and leukocytes absorb reagin, and forms the basis for his "hemoclastic Wassermann" reaction.

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* Submitted for publication, March 12, 1930.

* From the Laboratories of the Atlantic City Hospital.

1. Banciu, A.: Sur un procédé plus sensible pour mettre en évidence la "réagine" spécifique (l'hématoclasie in vitro), Ann. d. néol. vén. **21**:590, 1926.

In Banciu's procedure the blood, which is collected as usual, is subjected to mechanical hemolysis either by shaking with glass beads or by whipping the clot with a glass rod. The serum, which contains diffused hemoglobin, is then separated and tested as usual. He reported a definitely increased delicacy of complement fixation with such serums.

Without repeating his original experiments, Banciu's procedure was carried out with 300 serums, with the following results.

EXPERIMENTAL PROCEDURE

The serums tested were all obtained from the Venereal Disease Clinic of the Municipal Hospital. The majority, therefore, were from persons known to have syphilis, the remainder being from patients under suspicion and tested for serologic diagnostic evidence.

When the blood was received, after centrifugation, one-half the serum was removed for a test by the method used as a routine, and the clot was then thoroughly whipped with a glass rod. The remaining serum, which was strongly tinged with hemoglobin, was then tested separately.

TABLE 1.—*Positive Reactions after Hemoclasis*

Number	Kolmer	Hemoclastic	Comment
1.....	00000	43000	Treated for syphilis
2.....	00000	44400	Secondary syphilis
3.....	00000	44000	Treated for syphilis
4.....	00000	44400	Keratitis
5.....	00000	04400	Penile lesion, two weeks
6.....	00000	44300	For diagnosis
7.....	00000	14400	For diagnosis
8.....	00000	20000	Treated for syphilis

All tests were done by the six tube quantitative method of Kolmer.[2] In order that both series might be strictly comparable, both were set up at once; thus the same reagents (antigen, complement and hemolytic system) were used throughout.

Of the 300 serums, 209, or 69 per cent, were negative to both tests. The majority of these were from persons with syphilis who had received extended treatment, the remainder being from patients with nonsyphilitic lesions.

Hemoclasis increased the number of anticomplementary reactions, nineteen serums, or 6 per cent, being anticomplementary after hemoclasis and seven, or 2 per cent, being anticomplementary as received.

Both tests were positive in fifty-one serums, or 17 per cent.

In eighteen serums, the Kolmer test gave negative and the hemoclastic test positive results. The reactions with these are shown in table 1.

In eleven serums, positive to both tests, the reaction after hemoclasis was stronger than before, as shown in table 2.

2. Kolmer, J. A.: A New Complement Fixation Test for Syphilis Based upon Studies in the Standardization of Technic, Am. J. Syph. **6**:82, 1922.

In nine serums, positive to both tests, the reaction was weaker after hemoclasis. These results are shown in table 3. The explanation is not obvious.

A positive Kolmer with a negative hemoclastic reaction was not obtained in any instance.

A Kline [3] precipitation test was done on all the serums, with the results commonly expected when precipitation reactions are compared in series with complement-fixation reactions: Precipitation readings were usually possible with anticomplementary serums; occasionally only the precipitation test was positive (in one case there was a primary lesion

TABLE 2.—*Reactions Increased in Strength after Hemoclasis*

Number	Kolmer	Hemoclastic	Comment
1	04100	44300	Tertiary syphilis
2	11000	44000	Primary lesion on lip
3	44000	44200	Treated for syphilis
4	40000	31000	Treated for syphilis
5	44000	44100	Secondary lesions
6	44400	24440	Penile lesion
7	02400	44400	Treated for syphilis
8	14440	44440	Treated for syphilis
9	20000	41000	Treated for syphilis
10	44400	44410	Penile lesion
11	20000	44400	Treated for syphilis

TABLE 3.—*Reactions Weaker after Hemoclasis* *

Number	Kolmer	Hemoclastic	Comment
1	04441	44400	Treated for syphilis
2	44000	43000	Treated for syphilis (possible gastric carcinoma)
3	44440	44400	Treated for syphilis
4	44400	44000	Treated for syphilis
5	43200	44000	Treated for syphilis
6	44400	44000	Secondary lesions
7	04100	34000	Secondary lesions
8	04440	04400	Treated for syphilis
9	44440	44400	Treated for syphilis

* In the Kolmer quantitative method the strength of the reaction is determined by the smallest amount of serum with which fixation—regardless of the degree—is obtained. Thus, a 44210 reaction is stronger than a 44000 reaction because fixation occurs with higher serum dilutions.

of one week's duration and in two old cases treatment had been given for a long period), and occasionally the precipitation test was negative when either of or both the others were positive. In general, the results were comparable.

SUMMARY

The results in a series of 300 serums tested by Banciu's hemoclastic technic in comparison with the results in Kolmer's quantitative complement-fixation test suggest that reagin may be bound in part by the formed elements of the blood from which it may be separated by mechanical rupture of the corpuscles.

3. Kline, B. S., and Young, A. M.: A Microscopic Slide Precipitation Test for Syphilis, J. A. M. A. **86**:928 (March 27) 1926.

ARTISTIC TATTOOING IN DERMATOLOGY *

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Tattooing can be employed successfully for the correction of the following defects of the skin: flat scars on any portion of the integument; raised white scars, after previously having been flattened by excision or by an adequate roentgen treatment; pale grafted skin; lack of natural pigment; flat and raised scars on the lips, and paleness of the lips as a result of insufficient blood supply.

These defects are caused by: traumatic injuries, such as cut wounds, burns, removal of birthmarks, warts, etc., and an overdose of the x-rays or radium; skin diseases, such as epithelioma, lupus, etc., and idiopathic diseases, such as vitiligo.

The correction of these defects requires a paint of a certain color and shade. The color is sometimes composed of several paints by admixture, and other times only one paint is used. The different shades are produced by mixing an adequate quantity of black or white paint to that to be used, or by diluting it with water.

Before I consider the subject of paints and the procedure to be employed, I think that certain rules relating to the mixing of different paints and to the production of different shades should be explained.

A spectrum circle is made up and divided into three equal parts: red, green and violet, called spectrum primaries; all the twenty-four colors of the spectrum are made of these three colors. In the alternate spaces between these three colors are the yellow, blue and crimson, the three pigmentary primaries.

By combining the red and green rays of light, a sensation of yellow is obtained; by combining the green and violet rays, a sensation of blue; and by combining the violet and red rays, a sensation of crimson. One pigmentary primary will be opposite to the spectrum primary The colors which are opposite to each other are called complementaries. Complementary color means that when the two colors are mixed together, they would make a black or dark gray paint.

The three spectrum primaries and all the other twenty-one colors are original colors and are called hues. If the complementary color or a black paint is mixed with any of the original colors or hues, the different shades or tones of that color are obtained.

* Submitted for publication, March 3, 1930.

For instance, red mixed with a small quantity of blue (complementary) or with black will result in a red of a darker shade or tone. On the contrary, if a color of a certain shade or tone is mixed with a white paint, a lighter color is obtained; the different tints are obtained in this way.

For the correction of the white or pale areas of the skin or lips, nonpoisonous paints are used which are stable to light; that is, they do not change their shade after many years.

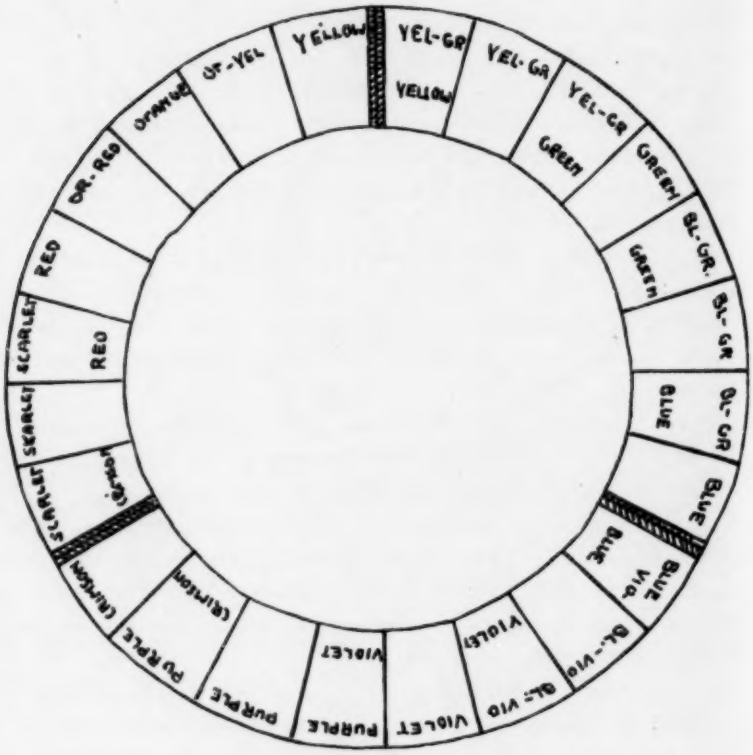

Fig. 1.—Color spectrum.

Among these nonpoisonous paints are: 1. The natural and artificial ochers of different colors and shades. They all owe their color principally to the presence of different iron hydroxides, as yellow hematite (Fe_2O_3 H_2O) and brown hematite ($2Fe_2O_3 3H_2O$). The coloring principals are mixed with more or less clay, gypsum and chalk. The color of the ocher depends on the proportion of the different iron hydroxides; the shades on the materials mixed to the coloring matters. The natural ochers are yellow, brown and red. They appear under the following names: yellow ocher, brown ocher, terra de sienna, raw sienna, indian

red, red chalk and bolus. The artificial yellow and brown ochers are produced by precipitation of iron salts; these are called marsh colors: marsh yellow, marsh brown, etc. The artificial red ochers are prepared by roasting the natural yellow and brown ochers. They lose their water contents and are converted into iron oxide ($2Fe_2O_3 3H_2O = 3H_2O + 2Fe_2O_3$). By this process their color is changed to red. They appear under the following names: light red, burnt ocher or gebranter ocher, etc.

2. Barium sulphate. This is a white powder, permanent to light, insoluble in water, alcohol, dilute acids and alkalis.

3. Krapplack. This is a nonpoisonous brilliant, transparent and permanent color; it is obtained from the madder root extracts. The coloring principal is alizarin, but usually the synthetic coal tar alizarin is used which is made of anthracen.

4. Ivory black, bone black or lamp black. These are used for the black paint. The former are made of ivory chips or of the bones of animals by charring the bones. The coloring principal is the carbon associated with calcium carbonate and phosphate. The latter is manufactured from oils rich in carbons, burnt in wick lamps. The coloring principal is carbon. All the black colors mentioned are nonpoisonous, intensely black, safe and permanent.

5. Carmine or zinober. By most of the persons in this type of work these paints are used in substituting for the natural red color. I do not think carmine and zinober suitable, because the carmine is exceedingly fugitive; it bleaches by action of sunlight in a very short time and is destroyed by many of the metallic pigments in mixture. It decomposes in admixture with the raw earths, becoming brownish during the process of fading. Zinober is a beautiful red color but fugitive, and it may change into a gray or dark shade when heat or the rays of sun are applied.

The color of the skin, according to Unna and other authorities, is a complex color, being composed of red, yellow and white, and therefore they advise the use of a mixture of these colors; but by mixing them in various proportions, one can get only the following colors: orange-red or red-orange, orange, orange-yellow or yellow-orange in different tint, depending on the quantity of the white paint mixed to the red and yellow. Of the aforementioned paints, one can compose only the color of the flesh; the color of the skin cannot be imitated, because the skin is not of an original color and cannot be found among the twenty-four different original colors of the spectrum. The skin has a definite brighter or darker grayish color, and therefore the red, yellow and white paints should be mixed with a suitable amount of black paint. If the mixture is of a darker shade than is necessary, it should be tinted with white paint. When making up the gray paint, care should be taken not to

make up a too dark gray mixture, because the dark gray color appears bluish or blue in the skin. The reason for this phenomenon is explained physically: Black looks blue in penetrating light rays.

The red paint which is usually used for tattooing white scars and pale areas of the cheek and the lips is used without any other paint and is rendered lighter by dilution with water.

Before I describe the technic of paint mixing necessary for this work, I shall call attention to the fact that dry pigments in a fine state of powderization reflect considerable white light from their outer surface. If the powder is moistened the amount of the reflection is reduced, and therefore the paint is of a darker shade. Because of the same physical principle, a paint dissolved or suspended in water and painted on a subject is of a darker shade than in its final dry painted state; this is due to the evaporation of the water from the paint.

The operator must remember to use the wet paint as a guide to the final color effect he desires to produce, because the paint is in a wet condition in the skin. To obtain successful results the operator must bear in mind that although the paint is in a wet condition in the skin, one must use one shade darker than the desired shade, because when introduced into the skin, the paint is tinted by the white component of the skin and additionally paled by eventual encapsulation. For a few days, the paint tattooed into the skin looks darker than the paint originally used for the tattooing, because there occurs a congestion immediately after the tattooing (due to trauma) followed by an inflammation. For this reason, the red color component of the skin is temporarily increased. After the inflammation subsides, the color tattooed into the skin looks paler than that originally used for the tattooing process. The explanation for this is given in previous paragraphs. If there is a white scar or a pale area of a grafted skin on one side of the cheek region, and the patient has a pale complexion, artificial cheek coloring should be performed on both cheeks; but it should be borne in mind that the blood supply in the palest normal skin is richer than in a white scar. Consequently, a darker shade of red paint is required to produce the desired color effect contrast.

TECHNIC

The technic of paint mixing and of tattooing are as follows:

Paints used for substituting the color of the skin, barium sulphate, yellow ocher and krapplack, are placed in a saucer, each in suitable proportion. As the paints used are soluble only in strong ammonia liquid and the caustic alkalis, suspend the paints in water with gum arabic. Add a sufficient amount of gum arabic to these pulverized paints, thus rendering the mixture pasty; dilute it with water to a semifluid state. The result is a yellow-orange color which is rendered gray by an adequate addition of a quantity of ivory black or lamp rust. If an excess of black was added, the mixture may be tinted with white paint (barium sulphate). Of course, an exact amount of the paints to be used cannot be specified; it varies

according to the pigment and the blood supply of the individual skin. The red paint used for the lips is prepared in the same way from krapplack. If the shade is not dark enough, which can be determined in from about eight to ten days, the tattooing should be repeated with a darker paint. It is always advisable to use at first a lighter shade.

Tattooing is performed with a P-shaped instrument; within the P-shaped enclosure are two magnetic coils, above which is located the wagnarian hammer. This hammer in turn operates several needles which are located at the base of the leg of the P. The instrument is attached to an electric battery. When the current is switched, the needles are set into rapid vertical motion.

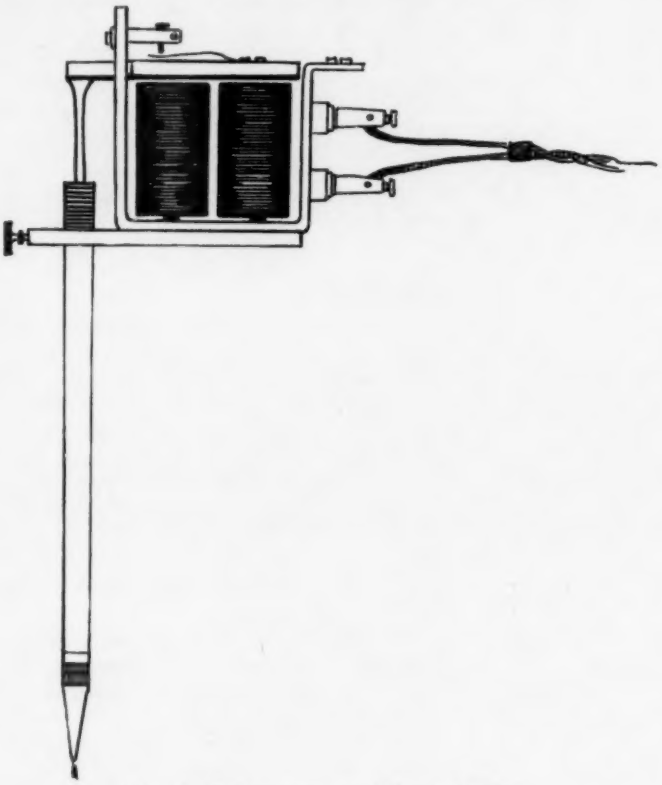

Fig. 2.—Instrument used for tattooing.

The skin is first rendered aseptic by being cleaned with green soap and absolute alcohol; anesthesia is made with 1 per cent solution of procaine hydrochloride; the needles are set in motion, dipped into the paint and finally held close to the skin to be tattooed. The surplus paint collecting on the skin during the performance of the tattooing should be constantly wiped away by a piece of sterile cotton dipped into sterile water, because one must always have a clear field in order to see that the color is properly blended so as not to produce isolated patches, the object being to simulate natural coloring. After the area is tattooed, it is covered with sterile gauze. The skin becomes slightly inflamed within a few hours. This subsides in five or six days. It then starts to peel, and in the course of eight to ten days the peeling is ended and the skin looks normal.

Abstracts from Current Literature

THE NONCARCINOGENIC NATURE OF PURIFIED MINERAL OILS. FRANCIS CARTER WOOD, J. A. M. A. **94**:1641 (May 24) 1930.

The skin of albino mice was painted with samples of purified mineral oils—commercial products popularly used in therapeutics. They did not cause cancer. Painting with a heavy lubricating oil produced a few papillomas. Tar paint produced a number of carcinomas. Feeding the mice with medicinal purified oil did not produce cancer in the gastro-intestinal tract. There is evidently no reason for the concern shown in some quarters as to the possible dangers of using heavy oils for therapeutic purposes.

PAGET'S DISEASE OF THE NIPPLE. JOSEPH J. ELLER and NELSON P. ANDERSON, J. A. M. A. **94**:1653 (May 24) 1930.

In three cases of Paget's disease of the nipple, the authors found on microscopic study of serial sections, a true intraduct carcinoma. They maintain that Paget's disease should not be considered a precancerous lesion, but a carcinoma of the nipple symptomatic of a deeper carcinoma of the breast. Photomicrographs are shown.

THROMBO-ANGIITIS OBLITERANS (BUERGER). SAMUEL SILBERT, J. A. M. A. **94**:1730 (May 31) 1930.

This is a statistical report on about 450 patients treated by means of intravenous injections of hypertonic salt solution. Of this number, 84 per cent showed symptomatic improvement, 67 per cent resumed their former work and only 8.3 per cent required amputation. Most of those who did not improve failed to discontinue smoking as they were advised to do. The treatment is contraindicated in persons over 60 years of age, and in those with myocardial or renal insufficiency. In a few cases, jaundice occurred, which disappeared when treatments were discontinued.

THE CLINICAL VALUE OF THE KAHN REACTION. KENNETH M. DAVENPORT, J. A. M. A. **94**:1736 (May 31) 1930.

A study was made of the correlation of the Kahn reaction in blood serums with the clinical observations in 2,070 examinations. In the group of untreated patients with syphilis, there were nine negative reactions in 8 cases of chancre. There was a uniform four plus reaction in 51 cases of secondary syphilis, and the reaction was negative in five of 25 cases of tertiary syphilis, one of 73 cases of latent syphilis, one of 62 cases of hereditary syphilis and five of 47 cases of cerebrospinal syphilis; all of these patients were untreated. In the treated group there was no uniform parallelism between the amount of treatment and the serologic response. Apparently the Kahn test is of greater value as a diagnostic test then as a measure of therapeutic response.

FATAL HEPATOGENIC HYPOGLYCEMIA FOLLOWING NEOARSPHENAMINE. JOHN B. CROSS and L. M. BLACKFORD, J. A. M. A. **94**:1739 (May 31) 1930.

The patient complained of pruritus after the sixth injection. The first was of 0.6 Gm. and the remaining were each 0.9 Gm., one week apart. Treatment was instituted on finding a positive Wassermann reaction on routine examination. The patient was subsequently found to have hypoglycemia. From the observations at necropsy, the hypoglycemia was apparently of hepatic origin. There were no other clinical signs of hepatic disease. The literature on hypoglycemia is thoroughly reviewed, and it is thought that early recognition of hepatogenic hypoglycemia with

the administration of adequate amounts of sugar by mouth and by vein, and of calcium intravenously, may save life.

SCURVY FOLLOWING A RESTRICTED DIET IN COLITIS. SAMUEL L. IMMERMAN, J. A. M. A. **94**:1757 (May 31) 1930.

This is a report of a patient who, because of colitis, was on a restricted diet for eleven months. Her diet consisted of rice, custard, chicken broth, eggs, boiled milk, white meat of chicken and lamb chops. She had no fruits. A typical scurvy developed which improved on taking orange juice.

THE PREVALENCE OF SYPHILIS IN APPARENTLY HEALTHY NEGROES IN MISSISSIPPI. PAUL S. CORLEY and O. C. WENGER, J. A. M. A. **94**:1826 (June 7) 1930.

The blood specimens from 7,298 unselected Negroes of rural Mississippi above the age of 9, by complement fixation tests for syphilis, showed positive reactions in 19.3 per cent of males and 18 per cent of females. The maximum age incidence was between 30 and 39 for both male and female subjects.

EPIDEMIC OF DERMATITIS VENENATA DUE TO A HITHERTO UNDESCRIBED CAUSE. FREDERICK R. TAYLOR, J. A. M. A. **94**:1916 (June 14) 1930.

The author cites several cases of dermatitis venenata of the hands following the dressing of rabbits. There was nothing in any of the cases to suggest tularemia.

THE ASSOCIATION OF CARCINOMA OF THE TONGUE AND SYPHILIS. GEORGE H. BELOTE, J. A. M. A. **94**:1985 (June 21) 1930.

In a statistical study of ninety-two cases of tongue carcinoma, the author found seropositive evidence of syphilis in about 30 per cent. The general syphilitic incidence, as determined by positive serologic tests in the same hospital, is 5 per cent, and in cancer cases generally it is 7.2 per cent, thus establishing a rather close relation between syphilis and cancer of the tongue as presumptive cause and effect. Patients with syphilis developed cancer of the tongue about eight years earlier than did nonsyphilitic patients, and leukoplakia occurred twice as frequently in those with syphilis.

BLASTOMYCOSIS OF THE PROSTATE, EPIDIDYMIS AND LEG. BRANSFORD LEWIS, GRAYSON CARROLL and GAROLD V. STRYKER, J. A. M. A. **94**:1987 (June 21) 1930.

This is a short report of a case of blastomycosis of the skin, prostate and epididymis.

HAIR GROWTH AND PREGNANCY. HELEN L. DAWSON, Science **71**:607 (June 13) 1930.

In studying the rate of hair growth on guinea-pigs, by the method of observing the regeneration of hair on shaved areas, it was noted that in pregnant females the number of hairs which regenerate decreases and reaches a minimum at the time of delivery. Males and virgin female guinea-pigs were used to control such possible factors as cyclic or seasonal activity of the follicles. The backs of the animals were shaved, and the amount of regeneration was computed by counting the number of follicles in the shaved area, and noting those which were active and those which were in a resting stage. In the pregnant animals the number of hairs regenerating was noticeably less the third week before delivery, reached a minimum at the time of the delivery and remained so for two weeks post partum. The number of regenerating hairs then slowly increased, and by the end of the fourth week post partum the rate was normal.

MODERN COSMETIC PREPARATIONS. R. M. B. MACKENNA, Brit. M. J. **1**:899 (May 17) 1930.

MacKenna undertakes a critical consideration of cosmetic treatment as carried out by beauty shops and beauty specialists. He vigorously condemns their practice of using creams in place of soap. Any healthy skin can use a bland soap, and it is only exceptionally that a superfatted soap is required.

Ill effects sometimes seen from frequent and prolonged use of creams are probably due to the chemical nature of the ingredients or to their physical properties. The deleterious effects caused by the chemical nature of cold creams are slight, for they are merely mixtures of oils, fats and waxes, but a certain percentage of them contain liquid paraffin, which might be harmful.

Vanishing creams, however, contain glycerin, which being powerfully hygroscopic probably interferes with the metabolism of the superficial cells of the epidermis. Hamamelis, another ingredient, is an astringent and tends to precipitate the proteins in any cell with which it comes in contact. When the creams reach the lumen of the skin glands, the damage must be greater because of the delicate nature of the secreting glands. In this connection MacKenna reminds us that the majority of rodent ulcers begin in the sebaceous glands, and he raises the question as to whether or not in the next twenty years, we will see more epitheliomas on the faces of women than is the case at present. The boric acid contained in creams may be another source of irritation.

The physical effects of the use of creams are considerable. The constituents are not absorbed; the sebacious and sweat glands are blocked, which interfers with perspiration. This causes the temperature of the skin to rise, with continued dilatation of the superficial capillaries and eventual production of acne rosacea. The increased temperature stimulates the activities of organisms which may be present in the sebaceous ducts; comedones form, and acne vulgaris may develop.

Wrinkle removers contain innocuous ointments and have to be vigorously massaged in. Any benefit is due to the massage, which causes contraction of the underlying muscles. Some "skin tighteners," however, contain irritants and act by irritating the skin so that a reflex contraction occurs in the superficial muscles, thus obliterating the wrinkles. The last state of the patient is usually worse, because senile changes and atrophy of the muscle fibers are hastened.

The various lotions and skin foods are open to the same critictism as vanishing and cold creams. Care is taken that they are not greasy for "grease makes the hair grow."

The author cautions against having patients discard all their cosmetics suddenly. The skin glands have been injured to the point of decreased function, and the sudden withdrawal of greases may cause a dermatitis.

The compositions of the various hair preparations are then considered and strongly condemned. MacKenna advises against the practice of permanent waving of the hair, for eventually fragility of the hair may result. Various formulas for the different preparations are given.

A CASE OF "GOLDEN HAIR." FOLKE KNUTSSON, Acta radiol. **11**:78, 1930.

The author describes the curious case of an absolutely bald-headed man with about 2,000 small gold threads in his scalp. They were found on roentgen examination for a skull fracture. It seems that some years previously a physician inserted these threads furnished with tufts of hair. After six months, however, the hairs were worn away.

RATTNER, Chicago.

POIKILODERMATOMYOSITIS IN CHILDHOOD. G. PETGES and A. PETGES, Ann. de dermat. et syph. **1**:441 (May) 1930.

About forty cases of poikiloderma and poikilodermatomyositis have been reported, among them one case in a child aged 6 years and two cases in patients under 20 years. The authors report two additional cases, their patients being

7½ and 18 years of age. The cases showed mixed forms with severe involvement of the musculature. One patient died of pulmonary tuberculosis; the other was probably congenitally syphilitic. Poikiloderma seems to be more grave in childhood than in adult life.

In the four cases that the authors have seen at Bordeaux, all were of a severe type with myosclerosis. In these cases the skin manifestations were either of the localized type (Civatte) or the generalized form (Jacobi). This confirms the authors in their idea that poikiloderma and poikilodermatomyositis are a single syndrome. The latter condition should be placed nosologically with the two other forms.

A Case of Oriental Boil with the Histologic Structure of Boeck's Sarcoid. A. Dupont, Ann. de dermat. et syph. **1**:453 (May) 1930.

The tuberculoid structure of Oriental boil is well known in the forms simulating tuberculous gumma and lupus vulgaris, but a histologic architecture simulating sarcoid of Boeck seems not to have been recognized. The author reports such a case, chiefly to call attention to this possibility, so that errors may be avoided. His patient presented an eroded papule on the left shoulder. While the microscopic appearance was comparable to Boeck's sarcoid there were some differences, chiefly in the invasion and involvement of the papillary body and epidermis by the infiltration and in the pleomorphic composition of the infiltrate. Leishman organisms were found in the tissue.

Familial Xanthoma. G. Hufschmitt and V. Nessmann, Ann. de dermat. et syph. **1**:462 (May) 1930.

Four of five children in one family had xanthoma tuberosum. The disease developed between the third and fifth year of life. Histologic examination showed the classic picture of the disease; chemical analysis of the tumors demonstrated that they were composed, for the most part, of cholesterol. The authors discuss the pathogenesis of the disorder but find no entirely satisfactory explanation of it. While it has been stated that hypoglycemia is always present in familial xanthoma, the authors' patient showed a varying blood sugar content from low to normal. The indications for treatment are to reduce the fat intake and employ cholegogues. Substances in which cholesterol is soluble (pyridine, turpentine) may be tried, as well as oxidizing agents (manganese, iron) which transform cholesterol into more soluble compounds.

Experimental Cutaneous and Subcutaneous Cytosteatonecrosis (Oleogranuloma). J. M. Schwarzmann, Ann. de dermat. et syph. **1**:476 (May) 1930.

Schwarzmann, in both human and animal subjects, found that a traumatic cytosteatonecrosis follows the intradermic introduction of various liquids. The proof of the traumatic origin of the lesions is based on the fact that even physiologic solution of sodium chloride produces them.

The oleogranulomas are more definite and involve the subcutaneous fatty tissue if substances that obstruct the reticulo-endothelial tissue are injected. Such substances are blood, carmine or other dyes, and probably oils. Fatty tissue is very sensitive to traumatism. For this reason, when cutaneous or subcutaneous nodules of uncertain nature are present, oleogranuloma should receive careful consideration. According to the literature, the involution of oleogranulomas is sometimes accompanied by the impregnation of the cicatrix with calcium salts. It may well be that cutaneous calcinosis is preceded by a necrobiosis of the fatty tissue.

Polymorphous Tuberculids. J. Nicolas, G. Massia and P. Michel, Bull. Soc. franç. de dermat. et syph. (Réunion dermat.) **37**:304 (March) 1930.

A woman, aged 25, with suggestive pulmonary tuberculosis, presented a profuse generalized eruption of which she had several attacks. She presented typical papulonecrotic tuberculids, Bazin's disease, acne cacheticorum, angio-

keratoma, with some lichenoid elements recalling lichen planus, and plantar keratoderma with verrucous papules on the dorsum of the hands and feet.

THE HISTOLOGY OF LEVURIDS. P. RAVAUT and A. CIVATTE, Bull. Soc. franç. de dermat. et syph. **37**:389 (March) 1930.

The authors studied and compared the spontaneous lesion and that produced by a yeast preparation (levurine), the latter in different stages of evolution and involution. In the early reaction to the yeast preparation there was edema and a pronounced infiltration of neutrophils in the derma with epidermal vesicles. In the parakeratotic stage the picture simulated that of the spontaneous disease. In comparing the reaction to the yeast preparation with that to tuberculin and streptococcin, the authors found that their general aspects were similar. The infiltration in the latter two is more pronounced and extends deeper into the hypoderm. The tuberculin reaction is richer in eosinophils, and in its early stage shows a decided influx of polymorphonuclears. The most definite difference between these reactions occurs in the epidermis; the yeast preparation produces an intense reaction in this region, while the others do not.

BOWEN'S DISEASE. M. FAVRE, G. MASSIA and J. ROUSSET, Bull. Soc. franç. de dermat. et syph. (Réunion dermat.) **37**:405 (April) 1930.

The authors presented a patient with an erythematosquamous plaque on the left thigh, the surface of which showed a few nodules, some points of thickening and a small ulceration. Microscopic study demonstrated the characteristic dyskeratosis described by Bowen, with some areas revealing a structure recalling Paget's disease.

PURPURA IN QUINCKE'S DISEASE. DOYON, Bull. Soc. franç. de dermat. et syph. (Réunion dermat.) **37**:410 (April) 1930.

Doyon's patient complained of arthralgia and a nodular eruption limited to the legs. These lesions were purpuric, but the hemorrhagic element was always secondary. The lesions were evanescent, and the present attack had been preceded by typical angioneurotic edema of the face. The eruption seemed to be precipitated by effort. At first only violent and prolonged effort was necessary to produce an attack; later, a short walk or ordinary housework sufficed to bring out the eruption.

MULTIPLE TUBERCULIDS. J. NICOLAS and CH. PÉTOURAUD, Bull. Soc. franç. de dermat. et syph. (Réunion dermat.) **37**:425 (April) 1930.

On the scalp and face the patient had patches of lupus erythematosus; on the arms, both papulonecrotic tuberculids and Boeck's sarcoid. Finally, there were some giant necrotic lesions on the upper extremities. There was a generalized adenopathy but no pulmonary tuberculosis.

A NEW TREATMENT FOR TATTOO MARKS. J. LACASSAGNE and J. ROUSSET, Bull. Soc. franç. de dermat. et syph. (Réunion dermat.) **37**:442 (April) 1930.

The method consists in superficial crossed scarification followed by the application of finely powdered potassium permanganate. From ten to fifteen days later the crust falls, leaving a smooth, red surface which later becomes white.

LEUKOMELANODERMA OF THE COVERED PARTS FOLLOWING ECZEMA IN A PATIENT WITH LATENT SYPHILIS. GOUGEROT, BARTHÉLEMY and J. WEILL, Bull. Soc. franç. de dermat. et syph. **37**:465 (April) 1930.

The authors report a case which serves as further confirmation of similar cases reported by Gougerot in 1921. In this case the appearance simulated that of syphilitic melanoderma, but the lesions were present on the covered parts, and followed eczema. The Wassermann reaction was negative.

PAGETOID EPITHELIOMA OF THE THIGH. LORTAT-JACOB, FERNET and GRAND, Bull. Soc. franç. de dermat. et syph. **37**:467 (April) 1930.

The lesion was clinically typical; histologically, mixed basal and squamous cell. From a descriptive standpoint, the term "pagetoid" seems appropriate for this case.

HYPODERMIC SARCOID. LORTAT-JACOB, FERNET and BUCQUOY, Bull. Soc. franç. de dermat. et syph. **37**:469 (April) 1930.

The condition had been seen and diagnosed sarcoid by Hudelo four years previously. At that time, the lesions disappeared after two injections of tuberculin. The present outbreak also receded rapidly after injections of neoarsphenamine. In addition to the cutaneous lesions, the patient had convulsions, the attacks beginning with pain in the cutaneous lesions. To the authors' knowledge, this complication of sarcoids has not been reported.

SCLERODERMA WITH CALCINOSIS. MILIAN, L. PÉRIN and HOROWITZ, Bull. Soc. franç. de dermat. et syph. **37**:475 (April) 1930.

The patient presented a characteristic example of calcification in scleroderma associated with Raynaud's disease. The location of the calcified areas on the thighs and flanks is rare. In this case they seemed to be due to traumatism from continual rubbing.

LEUKOCYTO-REACTION IN SYPHILIS: CATARRHAL JAUNDICE. J. GOUIN, P. DAOULAS and A. BIENVENUE, Bull. Soc. franç. de dermat. et syph. **37**:487 (April) 1930.

In six cases of simple catarrhal jaundice, two gave negative reactions and four positive. In the same cases, the Wassermann and Vernes tests were negative while the Meinecke reaction paralleled the leukocyto-reaction. The patients had no clinical evidence or history of syphilis. In one positive case, the leukocyto-reaction became negative several weeks after the disappearance of the jaundice. In another positive case, it persisted. In icterus, it seems that the leukocyto-reaction cannot be depended on.

SYPHILITIC INFECTION FROM THE CADAVER. M. KITCHEVATZ, Bull. Soc. franç. de dermat. et syph. **37**:490 (April) 1930.

Kitchevatz reports the case of a medical student infected during an autopsy on a stillborn syphilitic child showing bullous syphilids. The time that had elapsed between autopsy and birth is not mentioned. It appears that there has been some doubt that syphilitic infection from the corpse is possible, but the present case is certain, and Hoffman has collected twenty-two unquestionable cases.

LEUKEMIA SIMULATING DUHRING'S DISEASE. S. CASSAVETIS, Bull. Soc. franç. de dermat. et syph. **37**:490 (April) 1930.

In this case, leukemia appeared to have begun seven years previously with adenopathy. Several months before presentation, the patient developed a bullous eruption having the features of dermatitis herpetiformis. The case was one of aleukemic leukemia. Its evolution, recession under arsenic and roentgentherapy, the splenomegaly and blood counts, as well as the results of biopsy, spoke for this diagnosis.

ERUPTION ON THE NECK FROM DYED FUR AND PERFUMES. BABALIAN, Bull. Soc. franç. de dermat. et syph. **37**:496 (April) 1930.

Babalian reports several cases of papular and lichenified eczema of the neck due to dyed furs, and two cases caused by perfume. These cases seem to be local

hypersensitivities, since transfer experiments have always been unsuccessful. There were indications of internal contributing factors in some of the patients (endocrinopathies, allergic diseases).

A Case of Arterial Embolism from Oil-Soluble Bismuth. Joulia, Bull. Soc. franç. de dermat. et syph. **37**:504 (April) 1930.

Joulia's case is the second recently reported in France following the intragluteal injection of an oil-soluble bismuth salt. In this case, the usual clinical features were present, but the gangrenous areas were of moderate extent. Even with good technic this accident does not seem to be preventable.

Michael, Houston, Texas.

DERMATOLOGIC ABSTRACTS

The Journal of the American Medical Association

Unilateral Edema in Infant Aged Four Months. J. S. Leopold and J. L. Rogatz, Am. J. Dis. Child. **39**:1045 (May) 1930.

A case of unilateral edema in a girl, aged 4 months, is reported by Leopold and Rogatz. It is concluded that the most probable cause was a maldevelopment of the sympathetic nervous system supplying the whole left side of the body. This is believed to be the first case of this nature to be reported.

Lymphoblastoma, Hodgkin's Disease and Tuberculosis. H. E. MacMahon and F. Parker, Jr., Am. J. Path. **6**:367 (May) 1930.

MacMahon and Parker cite the case of an elderly patient who was admitted to the hospital with the diagnosis of aleukemic leukemia. He was watched over for three years, and during that time he developed a manifest lymphatic leukemia. Following a short but severe infection, his white blood count and differential values returned to normal and remained unchanged till his death a year and a half later. He came to necropsy, and examination showed that he had not only aleukemic leukemia but also Hodgkin's disease and generalized tuberculosis.

Effects of High Voltage Cathode Rays on the Germinal Epithelium of the Rat. V. C. Jacobsen, Arch. Path. **9**:967 (May) 1930.

The effects of cathode rays of voltages of 200,000 and 250,000, with a current of 1 ma., on the germinal epithelium were studied by Jacobsen. The observations made are offered as further biologic evidence that the effects of roentgen rays are not due primarily to the roentgen rays but to the electrons or cathode rays set free in the tissues.

Status of Ultraviolet Ray Therapy in Diseases of Skin. A. E. Schiller, Radiology **14**:576 (June) 1930.

According to Schiller, few skin diseases can be actually treated with greater benefit by the ultraviolet rays than by other measures. Those which can are the skin tuberculosis group and the group of septic conditions, including septic wounds and ulcers. In other groups the ultraviolet ray has proved to be either a more or less indifferent agent or, at best, an adjunct to general treatment. Schiller says that, while it is readily apparent that the use of ultraviolet radiation in proper hands is accompanied by a minimum amount of risk, still there is a rapidly growing amount of evidence which would tend to prove that its use is not as

fool-proof as some would have us believe; that it is not an agent which can be put into the hands of the public for indiscriminate treatment of a variety of conditions, and that sooner or later the public will turn on the medical profession and heap reproaches on it for not pointing out the true status of affairs.

UNUSUAL REACTION FOLLOWING ARSENICAL TREATMENT OF SYPHILIS. N. BLACK, Canad. M. A. J. **22**:673 (May) 1930.

The case reported by Black apparently was one of benzene poisoning following five weekly injections of 3 Gm. of neoarsphenamine. The usual signs of arsenic poisoning were absent. In spite of vigorous treatment — four transfusions, large doses of sodium thiosulphate, calcium lactate, reduced iron, and liver — she died with typical signs of bronchopneumonia. A postmortem examination showed, besides the bronchopneumonia, a liver moderately enlarged, a spleen smaller than normal, petechial hemorrhages throughout the gastric and intestinal mucosa, and fatty degeneration of the marrow of the long bones.

ERYSIPELATOUS PATCHES IN STREPTOCOCCAL SEPTICEMIA. C. AUBERTIN and J. FLEURY, Bull. et mém. Soc. méd. d. hôp. de Paris **54**:468 (March 31) 1930.

Aubertin and Fleury report the history of a man, aged 20, in whom several small boils developed one day, and a severe sore throat two days, subsequent to being shaved in a barber shop. In spite of incision of a large boil under the chin, with an abundant discharge of pus, the general condition did not improve. One week after the onset of the symptoms, he entered the hospital. Examination disclosed several circular reddish patches on the patient's face, and on the back of the left hand was a scar still covered by a crust where the patient had been pricked by a rose thorn. The patient had severe pain in all joints. His heart was normal and the liver palpable. Culture of the blood disclosed the presence of hemolytic streptococci in large chains. The following day, large patches of erysipeloid aspect were noted on both arms; the skin was thickened and edematous but not painful on pressure. These symptoms persisted for several days coincident with an increasing dryness of the mouth. A second blood culture again revealed the presence of hemolytic streptococci. In spite of a slight decrease of temperature the patient became delirious, and death ensued five days after his entry to the clinic. Necropsy disclosed the presence of abundant seropurulent fluid in both pleural cavities; the lungs were congested, and an infarct was noted in the left one. The heart appeared normal but the spleen was enlarged, as were the liver and the kidneys. Hemorrhagic patches were noted on the mucosa of the ileum.

LUPUS ERYTHEMATOSUS: TREATMENT. H. BORDIER, Paris méd. **1**:272 (March 22) 1930.

Bordier obtains favorable results in the treatment for lupus erythematosus through application of medical diathermy by means of a specially constructed electrode. This incites the formation of crusts, which is more favorable than scarification. This treatment should be combined with injections of a preparation of bismuth hydroxide combined with mesothorium bromide.

TREATMENT FOR TAR CANCER IN WHITE MICE. L. E. WALBUM, Hospitalstid. **73**:189 (Feb. 13) 1930.

Walbum states that of 136 mice with tar cancer, fourteen, or 10.3 per cent, were cured by the injection of silver nitrate in doses optimal at the time of injection, according to the individual animal's reaction ability. No recurrences were observed.

Society Transactions

NEW YORK ACADEMY OF MEDICINE, SECTION OF DERMATOLOGY

MAX SCHEER, M.D., *Secretary*

Regular Meeting, Feb. 4, 1930

JOHN FRANK FRASER, M.D., *Chairman*

SILVER ARSPHENAMINE ARGYRIA (TWO CASES). Presented by DR. SPIEGEL.

F. B., aged 54, said that he had been treated for gonorrhea nineteen years previously. He had received three intravenous injections for syphilis twelve years before presentation.

The patient first came under observation on Dec. 10, 1925, for treatment for tabes. The symptoms consisted of pains in the legs, anisocoria, Argyll Robertson pupils, positive Romberg sign, absence of deep reflexes and paresthesia of both legs. The Wassermann tests of the blood and spinal fluid gave negative results. There were 8 cells, and the globulin test gave negative results. The colloidal gold test gave a reaction of 00023320000. From Dec. 10, 1925, to Nov. 5, 1926, he received a course of treatment with injections of arsphenamine, mercury and bismuth. From May 25, to Dec. 29, 1927, he received a course of treatment with silver arsphenamine and bismuth. From March 7, to Dec. 28, 1928, he received two courses of treatment consisting of tryparsamide, bismuth and mercury. From Jan. 8, to March 28, 1929, he received a course of treatment with bismuth. On June 4, the Wassermann test of the blood and spinal fluid gave negative results, and he felt considerably improved.

The patient returned on September 5, complaining of pain in the lower part of the legs and weakness. The discoloration of the skin which had been noticed during June was more pronounced. He again received a course of treatment consisting of silver arsphenamine, bismuth and twelve injections of sodium iodide. On November 10, the examination of the spinal fluid and the Wassermann test of the blood also gave negative results. When presented he had no symptoms of tabes.

The skin was bluish gray, more evident around the forehead, temples, chin and sides of the neck. This color did not disappear on pressure. The gums were bluish black, and the discoloration extended onto the hard and soft palates and was especially evident on the buccal mucous membrane, where it came in contact with the amalgam fillings of the teeth. The sides and under-surface of the tongue also presented this slaty blue discoloration. The sclera did not appear discolored. The urinalysis gave negative results. The blood count was normal. The blood pressure was 120 systolic and 80 diastolic.

During thirty-three months of treatment, the patient received the following injections: Twenty-five intravenous injections of arsphenamine, totaling 10 Gm.; twenty-one intravenous injections of silver arsphenamine, totaling 6.3 Gm., containing 0.88 Gm. of silver oxide; thirty-six intravenous injections of mercurosal, totaling 1.73 Gm. of metallic mercury; ninety-eight intravenous injections of an iodine and bismuth preparation, totaling 33.32 Gm. of an iodine and bismuth preparation, or 7.84 Gm. of metallic bismuth.

On November 4, a biopsy was taken from the buccal mucous membrane and from the upper scapular region for chemical and microscopic examination. The histologic picture of the sections of tissue in this case was essentially the same as that in the case which follows.

Chemical examination of the tissue from the back (scapular region) showed the presence of silver chloride crystals. These crystals darkened on exposure to light. Arc spectrographic analysis of this tissue was positive for silver, the line falling on 3280.67A (line for silver). Bismuth could not be found on spectrographic analysis of this tissue.

A. W., aged 23, a housewife first came to the clinic at the Lenox Hill Hospital on Jan. 15, 1925 for treatment for a large gumma involving the right sternocleidomastoid muscle. The Wassermann reaction of the blood was 4 plus with both cholesterinized and alcoholic antigens. She also presented the following stigmas of congenital syphilis: high palate, frontal bossae and saddle nose. The diagnosis was late congenital syphilis with gumma of the sternocleidomastoid muscle.

From Jan. 15, to Oct. 17, 1925, she received two courses of treatment consisting of ten injections of arsphenamine, eight intramuscular injections of salicylate of mercury and sixteen intramuscular injections of an iodine and bismuth preparation. The swelling gradually improved, and the patient disappeared from observation for five and a half months.

She reappeared on March 25, 1926, suffering from interstitial keratitis which was resistant to treatment. She received two courses of therapy from March 25, to Dec. 21, 1926, consisting of twelve injections of silver arsphenamine and twenty-seven injections of an iodine and bismuth preparation. She married on Sept. 18, 1927, and had a miscarriage some time in December.

From Jan. 31, to Oct. 31, 1928, she received three courses of treatment consisting of sixteen injections of silver arsphenamine and twenty-three intramuscular injections of an iodine and bismuth preparation.

On July 19, 1928, she gave birth to a hydrocephalic infant who died five months later. The discoloration of the skin first attracted attention during August, 1928, and on November 19, a piece of skin was obtained from the patient's back. This tissue did not reveal any evidence of argyria.

From Jan. 4, to Aug. 11, 1929, she received two courses of treatment, consisting of ten injections of silver arsphenamine and sixteen intramuscular injections of an iodine and bismuth preparation.

During March, she again became pregnant and was referred to the hospital on May 22 for contraceptive measures. At that time a piece of tissue was obtained from the right major labium. The bluish gray discoloration of the skin was then quite evident, and the general impression was of argyria following the use of silver arsphenamine.

On October 19, a piece of tissue was obtained from the buccal mucous membrane for study. The Wassermann reaction of the blood was persistently 4 plus on ten examinations.

On Dec. 22, 1927, and March 5, 1929, the spinal fluid was normal. On Jan. 4, 1929, the blood count showed: hemoglobin, 56 per cent; red cells, 4,400,000; white cells, 6,800; polymorphonuclears, 61 per cent, and lymphocytes, 39 per cent. On Aug. 23, 1929, the blood pressure was 120 systolic and 90 diastolic. The metabolism test made on March 23, 1929, was within normal range. Urinalysis gave negative results.

The skin presented a generalized, grayish blue appearance, most marked on the exposed parts and especially pronounced around the upper and lower eyelids. This discoloration did not disappear on pressure. The mucous membranes of the mouth were deeply pigmented and appeared blackish gray, especially on the hard and soft palates and buccal membrane, and the discoloration was more evident and intense where the mucous membrane came in contact with the metallic fillings of the teeth. The labia and vaginal membranes, and also the sclera, were similarly discolored.

During forty-six months, the following treatment was given: nineteen intravenous injections of arsphenamine, totaling 7.6 Gm.; forty-four injections of silver arsphenamine, totaling 8.8 Gm. of silver arsphenamine containing 1.23 Gm. of silver oxide; one hundred and five intramuscular injections of an iodine and bismuth

preparation, totaling 35.7 Gm. of an iodine and bismuth preparation or 8.4 Gm. of metallic bismuth.

Biopsies from the buccal mucous membrane and the labium showed the following changes:

The epidermis of the buccal mucous membrane was markedly thickened, particularly the rete and corneous layer in which a great deal of vacuolization was found. There was an inflammatory reaction with numerous focal collections of round cells in the corium. The smaller blood vessels were dilated, and the media of the arterioles were thickened. In the upper layers of the corium and extending well up into the papillae were numerous small granular dots arranged in streaks and masses. This pigment lay between the connective tissue fibrils, surrounded the small blood vessels and was found in the endothelial cells. No pigment was found in the connective tissue cells or in the round cells. The prussian blue reactions were negative for iron. Microchemical tests for silver and bismuth gave negative results.

The epidermis of the labium was approximately normal. The granular pigment deposit was the same as in the biopsy from the mucous membrane, and was otherwise similar.

DISCUSSION

DR. SHARLIT: As both of these patients received bismuth as well as silver, it might be well, as preliminary to the discussion of these cases, to have Dr. Spiegel submit his evidence for the contention that this pigmentation is due to silver.

DR. MYERS: These two cases are of particular interest to me because up to the present time there has been only one verified case of argyria following silver arsphenamine therapy reported in the medical literature. This report was published by Habermann (*Dermat. Wchnschr.* **40**:68, 1923) from the clinic of Eric Hoffmann.

At a meeting of the Dermatological Congress of Germany held in Munich in the same year, Dr. Mucha (Vienna) reported two unverified cases of alleged argyria. If the cases presented can be verified, two more will be added to the extremely small number.

In looking over the data presented by Dr. Spiegel, I noticed that he suspected hemochromatosis, a condition accompanied by pigmentation which leads eventually to cirrhosis of the liver, sclerosis of the pancreas and cutaneous pigmentation. In hemochromatosis two pigments are involved, hemosiderin and hemofuscin. According to his data, the test shows that hemosiderin is absent, but that does not eliminate the possibility of the presence of hemofuscin, which gives deposits of dark granules of pigment that are readily recognized by the pathologist by staining methods.

As Dr. Spiegel has suspected hemochromatosis, it is necessary for him to rule out all of the changes associated with the symptoms accompanying this disease. A dextrose tolerance test would be necessary to study the possibility of damage to the pancreas, and a complete chemical analysis of the blood would be essential. This examination is not included in the data accompanying the two cases presented. To rule out the question of hemochromatosis, a liver function test should be carried out in order to ascertain the possibility of involvement of the liver. I think that additional studies from the point of view of hemochromatosis should be carried out.

If it is a question of argyria or bismuth pigmentation, or even arsenic melanosis, I believe that the skin should be examined for each of these metals. In a neighboring university clinic I have seen several cases of verified bismuth pigmentation.

One of the methods cited in the data presented by Dr. Spiegel was the identification of silver chloride crystals. I believe that this method is inaccurate. The mere fact that this deposit turned dark proves nothing. If the crystals are to be identified, it would require the services of an expert crystallographer. Further, there was no analysis for bismuth, a point that I believe is essential in order

to establish whether the pigmentation is bismuth or silver. Bismuth and arsenic cannot be determined spectrometrically. It is also important to control these observations by means of skin taken from normal persons who have received no antisyphilitic treatment. The pigmentation in these patients seems to be localized, and if it were a question of silver arsphenamine argyrosis the pigmentation should be generalized. I suggest that these patients be exposed to sunlight or the ultraviolet rays with protected areas, and that any increase in the pigmentation should be noted.

There are two well known methods to determine whether silver is present in the skin. These methods are histochemical and are described in the literature. The method consists in preparing sections of the skin and then exposing them to either hydrogen sulphide or ammonium sulphide, depositing silver sulphide. If silver is present, the deposited granules will dissolve in potassium cyanide; if the granules are insoluble, the substance may be arsenic, bismuth or hemofuscin. The method described by Habermann is also available. I should be interested to know whether arsenic or bismuth can be found in the two cases presented, which are not verified at present.

DR. WINGWALL: The following specimens were submitted by Dr. Spiegel to determine whether or not silver or bismuth or both were present: (1) Skin — bottle marked Bucha no. 19884; (2) skin — bottle marked normal, adult. The samples were dried in an oven at about 60 C. and were placed directly on the lower pole of an arc, graphite electrodes being used. The arc was struck, and the emission spectrum was recorded by means of a Hilger EI spectrograph. Control exposures were made, silver and bismuth being used. Examination of the spectrograms showed that silver was definitely present in the three specimens. As the graphite contained small quantities of silver, the aforementioned procedure was repeated, high purity aluminum electrodes free from silver being used. The same results were obtained.

It was suggested that silver might be a normal constituent of skin, so samples were obtained from two premature babies, an infant and an adult, in addition to the aforementioned experiments.

The technic employed was to clear the skin in platinum and transfer the charred residue to the lower electrode, striking the arc between the aluminum electrodes. From spectrograms thus obtained, silver was found to be present in all cases.

The silver was identified by means of the silver lines, 3280.67A and 3382.89A units, the former or both being found depending on whether or not the first or the second position of the spectrographic setting was used.

Bismuth was looked for by searching for the sensitive bismuth line, 3067.73A units.

From the intensity of the silver lines in the spectrogram of case 19884, it is concluded that this case contains larger amounts of silver than the normal skin submitted as controls.

DR. SHARLIT: The several methods applied to the tissues for the chemical identification of the pigment have brought forth facts that are of special interest to us as dermatologists. I think that the evidence presented must be accepted as adequate for the demonstration of silver and the absence of bismuth. I studied the technic used for the purely chemical test applied to these tissues, saw the chloride crystals isolated therefrom and observed their photosensitiveness. Under the conditions of this procedure, in isolation a photosensitive chloride crystal could be nothing more than silver chloride. I take issue with Dr. Myers on his insistence on crystallographic confirmation. His further insistence that the several types of hemochromatosis be ruled out by other than clinical observation is not justified by reason of the fact that none of the hemochromatic pigmentations give the metallic slate color present in this case. The fact that the histochemical tests applied to the pigment granules did not give the reactions expected of silver need not necessarily be disturbing since those tests are founded on the identification of silver in tissue when introduced as inorganic compounds. In all probability, the

silver in tissue deposited from a parent substance such as silver nitrate is in a different form than that laid down from silver arsphenamine.

The spectrographic analysis gives astonishing facts. Beyond indicating the presence of increased amounts of silver in the skin of the patients with argyria, it further reveals the fact that no trace of bismuth was discernible; and this in spite of the fact that these patients received more bismuth than silver per kilogram of body weight. It seems hard to believe that the body could so efficiently dispose of a substance foreign to its metabolism. Is there a heavy metal effective in therapy that can be perfectly and completely excreted, or is it that it will not usually deposit itself in the skin? This factual observation is worthy of experimental supplement. On the other hand, the finding of some silver in the skin of a fetus strongly suggests this element as a normal constituent of the skin.

DR. ROSEN: A discussion as to the technic employed in the administration of the drug might be of importance. In the cases in question, the drug has been used in a concentrated solution, that is, 10 cc. for each dose, which was given by the syringe method and unfiltered.

I used a dilution of 30 cc. to each 0.1 Gm. of silver arsphenamine; I filtered the solution and let it stand at least fifteen minutes before administering it by the gravity method.

DR. SAUNDERS: At the University Clinic, more than 4,000 injections of silver arsphenamine have been given. The syringe method has been used, 3 decigrams being given in 20 cc. of water, which is an even smaller dilution than Dr. Spiegel used. I agree with Dr. Rosen as to the advisability of filtering the solution. In more than 100 patients treated we have had no indications of argyria. I do not believe that Dr. Spiegel's technic is responsible for the condition presented by these two patients. I should attribute it rather to some idiosyncrasy of the patient.

DR. PAROUNAGIAN: Silver arsphenamine was first administered at the Bellevue Hospital Syphilis Clinic on Oct. 20, 1920. I made a preliminary report on 373 injections before the Academy of Medicine at the November, 1920, meeting, which was published in the ARCHIVES (**3**:333 [March] 1921).

At first our dilution was 50 cc. to each decigram; later, we reduced the dilution to 20 cc. to each decigram and used the gravity method.

We have administered approximately between 25,000 and 30,000 injections of silver arsphenamine since then, and I have yet to see a case of argyria resulting therefrom, in the clinic or in private practice. Our doses never exceed 0.2 Gm., and solutions are filtered through sterile gauze. I still believe that we use it more extensively than any one else in the United States.

DR. CANNON: I have used a great deal of silver arsphenamine over a period of years, and I have never seen a case of argyria due to it. I did not know that there was such a case on record. I think that it would be important if Dr. Spiegel would search carefully to find if it were possible that these patients had received silver in any other form than that given, i. e., mild silver protein, etc. I think that Dr. Rosen's point concerning the lack of thorough dilution of the drug is good. I always make it a point to give arsphenamine well diluted, usually 50 cc., certainly not less than 20 cc. of water per one-tenth Gram of the drug, and each dose is filtered before being administered. I think that the cases are most interesting if they are definitely attributable to silver arsphenamine. The cases reported should make a profound impression on all who have given silver arsphenamine promiscuously.

DR. GROSS: The syringe method is used in European clinics. Considering the fact that only three cases of argyria were reported in Europe, where silver and neosilver arsphenamine have been widely used for the past twelve years, the fault cannot lie in the syringe method.

DR. HIGHMAN: Is anything known about the susceptibility of people to silver? A large number of people use silver, and still there are few cases of argyria. Dr. Spiegel's cases perhaps indicate an individual peculiarity rather than anything inherent in the drug.

DR. FEIT: Was the silver arsphenamine filtered before it was used? I described the first case of hemorrhage from silver arsphenamine ten years ago and found that in that particular case it was not filtered. It would be unusual that both of these patients should have an idiosyncrasy to silver.

DR. HOPKINS: It seems to me that the interesting point is whether or not the pigmentation was due to silver. Would Dr. Spiegel tell us whether he was satisfied with the proof? I understand from his remarks that the histochemical tests made on section were not conclusive and that the spectrographic tests showed that silver was present in the normal skin. In that case the results are inconclusive.

DR. SPIEGEL: Years ago, argyria was supposed to occur as the result of the local application of nitrate of silver to the throat and after its use in the treatment for gastric ulcers and locomotor ataxia, thus reaching the tissues by way of the stomach and the gastro-intestinal mucous membranes. This might explain why so many people can take silver arsphenamine by the venous route and not have argyria.

I am glad to hear opinions about the administration of various highly diluted arsenicals. Dr. Gross called attention to the fact that the syringe method is used almost exclusively in Europe. It is from Europe that we get reports of the greatest number of reactions. The high concentration required for administration by syringe may be a reasonable explanation of these unfortunate occurrences. I have personally directed about 45,000 injections of arsphenamine and neoarsphenamine without a single death or a serious table reaction.

It has been shown by numerous observers, Azoulay, Strempel and Armuzzi, Lowenfeld and others, that bismuth reaches the skin and mucous membranes. Bismuth granules have been demonstrated in the corium of the mucous membranes. It is a transitory deposit and is absorbed by the capillaries. Silver deposits, however, are fixed in the corium and remain there permanently. The granules cannot be differentiated histologically. It is peculiar that in these two patients the microchemical tests did not conform to the usual tests for silver and bismuth in tissue. Habermann proved his case by two methods, i. e., the granules decolorized when the sections of tissue were immersed in a 1 per cent solution of potassium cyanide. He also demonstrated the granules by means of the bicentric reflecting condenser, the Leuchtbildmethode of E. Hoffman. He said that the granules stand out like the stars in the heavens. The microchemical tests for bismuth also failed in these two cases. The bismuth granules of black sulphide are decolorized by superhydrol, and are changed to white bismuth sulphate. By again immersing the sections in a solution of hydrogen sulphide, they return to the original black sulphide of bismuth. These granules are also soluble in a 50 per cent nitric acid solution.

While I was fairly certain that the discoloration was due to silver, there was no definite proof, since the microchemical tests, as stated, were both negative. Tissue from one patient was examined chemically by Professor William C. MacTavish of the chemistry department at the New York University and Bellevue Medical College, and he found silver in this tissue extracted as silver chloride. I have the slide showing the crystals of silver chloride. Bismuth was not found in this chemical analysis. To eliminate any possibility that the bismuth may have been lost in the chemical analysis, Dr. Andrew Dingwall, through the courtesy of Professor Hal Truman Beans of the analytical chemistry department at Columbia University, examined the remainder of this tissue for silver and bismuth.

It is unusual for this discoloration to have taken place, for in the male patient only twenty-one injections of silver arsphenamine were given, a total of 6.3 Gm. containing 0.88 mg. of silver oxide. The woman received forty-four injections, a total of 8.8 Gm. of silver arsphenamine containing 1.23 Gm. of silver oxide. In the case reported by Habermann, the patient received the Sioli treatment for dementia paralytica, 20.5 Gm. of silver arsphenamine and 12 Gm. of silver neoarsphenamine being given within three years.

I believe that silver arsphenamine is one of the best of the arsenicals, not only in neurosyphilis but also in early syphilis, and shall continue its use. This discoloration is due to individual susceptibility, to which Habermann, Mucha and

Sioli also agree. I believe that I use silver arsphenamine more extensively than any one else in this country, and I have had hundreds of cases in which as much as 12 Gm. of silver arsphenamine has been given, without any unpleasant sequelae.

As stated in the history, the prussian blue reactions were negative for hemosiderin. Melanin is an intracellular pigment, and no pigment was found within the cells. These tests were performed by a competent pathologist at Lenox Hill Hospital.

While the microchemical test did not conform to the usual tests for silver and bismuth in tissue, the chemical and spectrographic analysis as carried out by Professor MacTavish and Dr. Dingwall unquestionably proved that this discoloration of the skin was due to silver.

As previously stated by me and also by Habermann, Sioli and Mucha, there must be a susceptibility. These observers have said that the discoloration is not to be feared before 15 Gm. of silver arsphenamine has been given. I use the syringe method and dilute the drug 1:10. The solution is always filtered.

A Case for Diagnosis (Leprosy?). Presented by Dr. Gross.

E. H., a woman, aged 26, who was born in Porto Rico and had spent, six years in the United States, had had an eruption on her face for two years, which started as a small dry spot near the right corner of the mouth. The condition gradually spread. There had been no history of the ingestion of drugs. The tooth paste which she had used had been discontinued for several weeks with no signs of improvement.

Examination showed around the mouth a sharply outlined, diffuse, erythematous eruption with a purplish hue. The lesion was slightly elevated over the normal skin. On the vermilion border of the lips, the process had resulted in a mild exfoliation. There was no definite anesthesia over the involved area, although there was some lowered sensibility. The ulnar nerves were palpable but not thickened. The Wassermann reaction was negative. No lepra bacilli had been found in the nasal smear.

DISCUSSION

Dr. Highman: I do not think that the case is leprosy or anything but lichenified dermatitis. I should like to point out, although it may have no bearing in this particular instance, that from time to time this type of dermatitis results from the use of dentifrices containing one of the essential oils, such as menthol. This fact was pointed out in Freiberg by Jacobi, who noticed that a popular mouth wash used twenty years ago in Germany, "Odol," at times caused this type of eruption. It is possible that the case presented is in this category. Clinically, it does not resemble any form of leprosy of which I have heard or seen.

Dr. Levin: Besides the lesions about the mouth, there were numerous comedone-like lesions scattered over the neck and forehead. The dorsum of the tongue was bluish black and studded with prominent, elevated, blackish papillae. These two phenomena were not described in the history. I suggest investigation to determine the possible cause and nature of these lesions and the relationship to that of the lips.

Dr. Gross: This patient was under my observation for several weeks. The first thing I did was to advise her not to use any tooth paste or mouth wash, thinking of Jadassohn's "Odol" eczema, in which the active principle is salol. She did not improve, in spite of the fact that she used only milk of magnesia for cleansing her teeth. The question of phenolphthalein was thoroughly investigated, with negative results. Leprosy was considered because the condition has been present for more than two years, beginning with a small spot on the upper lip above the right angle of the mouth. The border of the lesion is sharply outlined, and there is a definite infiltration. I consider the exfoliation of the lips as a manifestation of an infiltrative inflammatory process extending over the vermilion border of the lip. The pigmentary changes may be attributed to the patient's race.

A Case for Diagnosis (Angiosarcoma?). Presented by Dr. Combes.

B. H., a woman, aged 46, gave a history of the appearance eighteen months previously of a growth in the abdominal wall which had gradually enlarged. On examination, she presented an irregularly nodular, well defined, subcutaneous tumor involving the skin, which was approximately 3 by 6 cm. in diameter and slightly raised above the surface. It was located to the left and below the umbilicus. The medial third of the lesion was quite red and edges were somewhat bluish. There was some telangiectasia at the edges. The surface was smooth. Because of the profuse hemorrhage on section, it was impossible to make a histologic examination. One unfiltered unit of the roentgen ray had been administered as a therapeutic test before extirpation. The diagnosis of angiosarcoma was suggested.

DISCUSSION

Dr. Wise: The diagnosis of angiosarcoma is probably correct. The lesion closely resembles growths of that type, in which the diagnosis is proved microscopically.

Dr. Cannon: Has a Wassermann test been made on this patient?

Dr. Pollitzer: I hope that when the biopsy is taken it will be large enough to cut out the entire growth, which is probably malignant and can be felt as an extensive infiltration under the surface.

Dr. Scheer: The cases of patients with lesions like that shown by this patient have been reported by Darier, Eric Hoffmann and others under the name of dermatofibrosarcoma protuberans. The tumors are usually situated on the skin of the abdomen and do not metastasize, but recur locally unless radically excised.

Dr. Combes: A Wassermann test was not made on this patient. The lesion may be totally extirpated.

Sarcoid and Lupus Erythematosus. Presented by Dr. Feldman.

S. G., a boy, aged 12, had no unusual past or family history. About two months prior to presentation his mother had noted the appearance of several lesions on his arms and buttocks. These did not inconvenience the patient in any way. He presented a flat lesion on the cochlea of his right ear, which was covered with white, adherent scales. This was thought to be lupus erythematosus. There were three firm, bluish red nodules on the nose and face. There were numerous nodules and also flat lesions on the extensor surfaces of the arms and forearms. All of the lesions had the same bluish coloration. The flat lesions were capped by adherent scales in some instances. In one location the nodules were arranged in a serpiginous group. The same condition was seen on the buttocks and upper portion of both thighs, except that serpiginous groups were more numerous. In several locations there was evidence of recession of the lesions with possibly a slight amount of atrophy. Pigmentation and scarring were absent.

Granuloma of Penis. Presented by Dr. Parounagian.

F. S., a Negro, had previously been presented before the Manhattan Dermatological Society in May, 1929. He had recently returned to the hospital, with an ulceration much more marked than before, involving a portion of the prepuce, sulcus and glans penis, whereupon he had again been given injections of antimony and potassium tartrate.

Ulcerating Granuloma. Presented by Dr. Parounagian.

L. B., an American Negro, aged 29, had had an ulceration in the gluteal region for fourteen months. He was admitted to the Bellevue Hospital Clinic on Jan. 15, 1930.

Examination disclosed an extensive, ulcerating lesion extending from the upper portion of the gluteal ridge down to the scrotum. The upper portion was super-

ficially ulcerated, while the lower part was somewhat hypertrophic. There was no history of venereal infection, and the Wassermann reaction was negative.

A biopsy was made which was reported as follows: "suppurative inflammation (absence of any histologic changes favoring a diagnosis of granuloma inguinale)."

The patient had received five intravenous injections of antimony and potassium tartrate.

A Case for Diagnosis (Blastomycosis?). Presented by Dr. Traub.

R. C., a laborer, a private patient, aged 45, presented a condition which had begun on the dorsum of the right hand four months prior to presentation with an area of redness which he said had developed over night apparently without a preceding injury. The condition increased in size and thickness, and he consulted a physician, who lanced the area, expecting to obtain pus. No pus was obtained at that time, but subsequent to the incision some did develop and later a rather large opening appeared at a site other than that incised by the physician. There was no history of tuberculosis in the family, and the patient did not give any history suggestive of tuberculosis. The patient said that he had not had venereal disease, and the Wassermann test gave negative results. Cultures and smears of the pus showed streptococcus and staphylococcus but no fungi. Two biopsies were taken but had not been reported.

Multiple Benign Sarcoid (Boeck). Presented by Dr. Combes.

J. C., aged 35, gave a history of the appearance of a single nodule on the left arm in May, 1929. Since then new nodules had developed on the same arm.

On examination, he presented a score of deep-seated and superficial nodules, with slight elevation, varying in size up to 2 cm. in diameter, arranged in a patch about 10 cm. in diameter on the extensor aspect of his left arm. The color varied from light to dark red. There were slight scaling and atrophy.

There was no family or personal history of tuberculosis. The Wassermann test gave positive results. Histologic examination revealed a sarcoid of Boeck.

A Case for Diagnosis. Presented by Dr. Thornley.

M. S., a white man, aged 63, presented a well defined ulcer, the size of a dime, with a clean base and sharp margin on the under surface of the upper lip. The tip of the tongue was denuded of surface epithelium in annular fashion on all surfaces. The dorsum of the tongue was much fissured. A similar fissuring and induration involved the right buccal mucosa near the angle of the mouth. These changes had been going on for three years. The patient had a chronic cough and had lost considerable weight.

Sarcoid (Darier-Roussy). Presented by Dr. Traub.

J. M., a man, aged 33, born in Canada, a telegrapher, came to the New York Skin and Cancer Hospital with nodules that had been appearing for somewhat over a year, with the exception of the large scarred area which was of longer duration. The lesions were confined to both legs and the left arm, with one or two on the trunk. On the posterior surface of the lower third of the left leg, there was a pigmented scar, the size of a dollar, the end-result of an old broken down lesion. The lesions had appeared in a comparatively short time, a few months, and frequently disappeared spontaneously. The tonsils were enlarged, but had caused no trouble, and the nose and throat consultant believed they were not a focus of infection. No focal infection was found in the teeth. The Wassermann test had given negative results repeatedly. A large nodule was removed from the left arm, and was reported from the laboratory as follows: "The subcutaneous tissue showed areas of round cells and also some giant cells and a suggestion of tubercle formation — sarcoid."

A Case for Diagnosis. Presented by Dr. Goodman.

L. O., a man, aged 33, born in Russia, married, a school teacher, had noted cracking of the skin near the nails about fifteen months prior to presentation. This change became annoying but did not persist. Later, red spots appeared on the backs of the hands. There was scaling of these areas. A physician diagnosed the condition as pityriasis rosea and prescribed an ointment. The areas of redness spread to the arms and the thighs. The spots coalesced to form areas of red skin as large as a half dollar.

Another physician was consulted, who diagnosed the condition as ringworm and prescribed a 2 per cent ointment chrysarobin. The skin of the entire chest and neck became inflamed. Crusting appeared on the upper arms, and Lassar's paste without salicylic acid was prescribed. The areas increased in size, and the patient could not sleep and felt too miserable to work. He noticed that his face showed redness.

As a result of rest, diet and a mild resorcin ointment, the patient improved and was able to return to work. In October, 1929, he painted a door of his home and immediately thereafter noticed an exacerbation of the eruption. At this time the halls and stairways at his place of work were being painted. The patient felt weak again and could not sleep, and the eruption became exudative. The skin of the palms and soles shed several times during the summer months.

In October, the patient presented himself at the outpatient clinic of the New York Skin and Cancer Hospital, showing red, scaly infiltrations of the skin of the entire body interspersed with areas of clear skin. The scalp was scaly. Some of the red areas were elevated and mildly infiltrated so that they stood out from the surrounding skin. At first glance the case appeared to be one of the erythrodermas. Opinions were divided as to the possible etiology. The suggestions included: dermatitis venenata (chrysarobin — resorcin), arsenical or lead dermatitis (pain), leukemia cutis and dermatitis exfoliativa, either primary or following a possible psoriasis.

A piece of skin was removed from an infiltrated, raised patch, about the size of a dollar, and sectioned. The sections showed an epidermis which had long rete pegs, some of which were fused and others which showed a slight tendency to clubbing. There was a rather marked infiltration of inflammatory cells through certain areas of the epidermis. Some of the vessels in the interpapillary spaces were ruptured, and there was hemorrhage in the tissue. There was edema but no definite vesicular formation. There was a moderate amount of perivascular infiltration in the blood vessels in the midcorium. The cellular infiltration consisted of lymphocytes and plasma cells. The diagnosis was: acute dermatitis superimposed on a chronic inflammatory process.

The following cases were also presented:

Adenoma Sebaceum. Presented by Dr. Feit.

Parapsoriasis. Presented by Dr. Gross.

Lupus Erythematosus. Presented by Dr. Parounagian.

Epithelioma. Presented by Dr. Wyeth.

Lichen Planus Hypertrophicus. Presented by Dr. Parounagian.

Secondary Syphilid. Presented by Dr. Parounagian.

Recalcitrant Syphilis. Presented by Dr. Parounagian.

Mycosis Fungoides. Presented by Dr. Sharlit.

Lupus Vulgaris. Presented by Dr. Bloom.

Parapsoriasis. Presented by Dr. Saunders.

Dermatitis Herpetiformis. Presented by Dr. Tulipan.

Pityriasis Rosea. Presented by Dr. Tulipan.

Epithelioma. Presented by Dr. Bloom.

MINNESOTA DERMATOLOGICAL SOCIETY

D. D. TURNACLIFF, M.D., *Secretary*

Feb. 5, 1930

E. C. GAGER, M.D., *Presiding*

A CASE FOR DIAGNOSIS (SUBCUTANEOUS SARCOID?). Presented by DR. HENRY E. MICHELSON.

A woman, aged 43, in good health, was presented with numerous subcutaneous, infiltrated plaques, from 1 to 2 inches (2.5 to 5 cm.) in diameter, on the arms and hips, and one (the most recent) on the cheek. These lesions had been present for years. They did not ulcerate, but on involution, left an atrophy of the subcutaneous tissue with occasional islands of normal tissue within. They were painless. The Wassermann and the Pirquet test were negative. Weekly injections of neoarsphenamine over a period of eight weeks, brought about a marked involution of the lesions.

DISCUSSION

DR. HENRY E. MICHELSON: Subcutaneous sarcoid seems to be the most probable diagnosis. We shall remove the foci of infection and treat the patient intravenously with arsphenamine and will report later.

DR. HAMILTON MONTGOMERY: We recently saw a case at the Mayo Clinic closely simulating the case presented tonight. The patient presented subcutaneous nodules, which ended in atrophy and retraction of the tissue. The lesions were unilateral; a few were painful. After microscopic and clinical study, a diagnosis was made of Dercum's disease (adiposis dolorosa). The microscopic picture showed changes in the morphology of the fat cells. There was, however, very little infiltrate present in contrast to the microscopic picture of the case shown by Dr. Michelson. The histopathologic picture in Dr. Michelson's case could be that of a sarcoid of a nonspecific type of reaction. The sections showed marked Wüch atrophy (fat replacement atrophy), the infiltrate being composed of polymorphonuclear leukocytes as well as cells of the lymphocytic series. The infiltrate was diffuse as well as perivascular. There were some areas of early necrosis. The microscopic picture, in other words, was that of an acute rather than a chronic process, and would suggest a pyodermic etiology rather than a tuberculous one. I would suggest that the sections he studied and stained further with Gram stain, and also with the stain for tubercle bacilli. I cannot make a diagnosis on the basis of the clinical picture plus the histopathologic observations.

BLASTOMYCOSIS CUTIS. Presented by DR. HENRY E. MICHELSON.

A man, aged 40, presented two lesions, one on the chin and one on the dorsum of the right wrist. The lesion on the wrist had an intense inflammatory reaction with multiple sinuses resembling clinically a carbuncle. The lesion on the chin was sharply circumscribed and raised, and discharged a purulent pus, but had no definite ulceration.

DISCUSSION

DR. JOHN BUTLER: How are you going to treat that patient?

DR. HENRY E. MICHELSON: We are going to freeze the lesions with carbon dioxide snow and administer potassium iodide internally. A diagnosis of blastomycosis had been made from the biopsy, the spores being found in the lesion.

LUPUS ERYTHEMATOSUS, TELANGIECTATIC TYPE. Presented by DR. HENRY E. MICHELSON.

A farmer, aged 21, was presented with a diffuse telangiectasis of the face and neck, and to a less extent on the hands, the involved areas being those exposed to

the elements. The skin showed atrophy together with telangiectasis and a diffuse erythema. He had received the intravenous gold treatment with no apparent improvement. The condition had been present for several years and had become constantly more marked. The biopsy showed an atrophic epidermis, dilated superficial vessels and a slight amount of infiltrate in the papillary portion of the corium.

DISCUSSION

DR. PAUL O'LEARY: I believe the patient has the superficial type of lupus erythematosus. On the lobe of the right ear is a patch which shows atrophy, plugging and scaling.

DR. HAMILTON MONTGOMERY: The histopathologic picture supports the clinical diagnosis of lupus erythematosus of the telangiectatic type.

DR. HENRY E. MICHELSON: Dr. Ormsby showed a case of telangiectatic lupus erythematosus at the Chicago meeting last year which he said responded to gold therapy. We are going to try the same treatment.

DR. E. C. GAGER: I would not be surprised if this patient would show improvement with gold therapy. I wonder if any of the physicians have used gold and sodium thiosulphate in cases of acne rosacea?

DR. CHARLES D. FREEMAN: If gold and some other treatment is used and there is improvement, I do not see how the credit for it can be given to the use of a gold compound.

DR. GAGER: I used gold therapy in two cases and no other treatment, and the patients both improved.

DERMATITIS HERPETIFORMIS (RESULTS OF ROENTGEN-RAY TREATMENT TO SPINE). Presented by DR. HENRY E. MICHELSON.

This case was shown to demonstrate the marked improvement following deep roentgen-ray therapy to spinal ganglions. The condition had been present for a number of years in an extensive and generalized form and responded to no treatment. Roentgen-ray treatments were given to the interscapular and lumbar spinal regions, five-tenths of a skin erythema dose being given, filtered through 3 ma. of copper. Two such treatments were given, the interval between treatments being two months. There was marked improvement following the first treatment. The patient stated that he had received the most relief from the itching that he had noted. A slight recurrence was noticed shortly before the second treatment, which was followed by still greater improvement. No other treatment had been given with the roentgen-ray therapy.

DISCUSSION

DR. PAUL O'LEARY: Dr. Goeckerman has treated five patients with dermatitis herpetiformis by roentgen rays in a similar manner, and three of them have shown a definite remission. This unfortunately, however, has not been permanent.

DR. E. C. GAGER: I wonder if the members recall the case I showed in St. Paul at the last meeting. I gave the patient two exposures. I saw him today and he was apparently free from any trouble.

A CASE FOR DIAGNOSIS. Presented by DR. S. E. SWEITZER.

A colored girl presented a number of round lesions that had elevated edges with scaling centers. The condition looked as though it might have been caused by fungus, but on examination none was found. The Wassermann reaction was negative. Biopsy did not show syphilis.

DISCUSSION

DR. S. E. SWEITZER: I had an idea that she had syphilis, but the Wassermann test was negative and Professior Bell said that the section did not show syphilis. Under treatment with neoarsphenamine, the patient improved. I favor a diagnosis of syphilis.

CHRONIC PYODERMIC ULCERATION. Presented by DR. HENRY E. MICHELSON.

A woman, aged 36, said that sixteen years before presentation, lesions appeared on the buttocks and in the axillae, as red, swollen painful areas which broke down and discharged pus, leaving a ragged ulcer. On presentation she had an ulcer in each axilla and one over the sacrum. With the first appearance of the lesions, there were general symptoms with fever. Since their onset the ulcers had never completely disappeared, although there had been healing at times. Her general health otherwise had been good. All clinical tests, including the Wassermann, spinal fluid, Pirquet and luetin tests, were negative. Therapeutic tests with arsphenamine and bismuth over a three week period, promoted no healing. The culture demonstrated *Staphylococcus albus* and the patient showed a marked diminution in agglutins. The biopsy showed a nonspecific inflammatory ulceration.

DISCUSSION

DR. HENRY E. MICHELSON: We have ruled out tuberculosis and syphilis to the best of our ability and think that we are dealing with a chronic ulcerating pyogenic infection.

DR. JOHN ARMSTRONG: I have had three cases like this. The first was in a boy aged 14. He had three lesions like these, following vaccination. The first was at the site of vaccination, the two others in an adjacent area. The Wassermann test was negative, but the parents both admitted having had syphilis before the patient was born. We had a great deal of difficulty in healing the lesions. Specific treatment alone was inefficient. Finally, with the use of scarlet red and wet packs of sodium hyposulphite, healing took place.

I showed this boy at the meeting of the American Medical Association here in 1913. I expressed the opinion then, that the lesions were not specific, but I thought perhaps it was the poor soil without immunity to infection that caused these lesions to persist. If I remember rightly, Dr. Ormsby, who was present, agreed with this point of view. This boy was also exhibited, but not by me, at several of the gatherings of antivaccinationists.

The second patient was a woman with alcoholism. She had spent the five years previous to presentation in an institution, because whenever she could get away she would consume large quantities of alcohol. She had one lesion on her forearm that had never healed entirely. I administered arsphenamine, but it made her very ill, and I was afraid to give her any more. I then gave her mercury by mouth, with some effect, so that I thought I would give her an injection of soluble mercury salt. The day after this was given she escaped. Four days later she was found in a shed back of a saloon; she had had no nourishment but whisky during that interval. She developed necrosis at the site of the injection and gangrene of the mouth and throat, and died. There was a negative Wassermann reaction, but the chances are, she was afflicted with syphilis.

I first saw the woman in the third case in 1902, following the patient's vaccination. A surgeon then cut out the lesion, and specific therapy (mercury and iodide) was given, but the lesions did not heal. During the late war, at least fifteen years later, I saw her again and the lesions were still present. They healed under treatment with neoarsphenamine. The patient showed a negative Wassermann reaction, but later died of dementia paralytica.

DR. LOUIS A. BRUNSTING: These patients whom Dr. Michelson mentioned seem to have the same condition in different stages — undermining pyodermia of a chronic type. These persons respond only when rigorous measures of local hygiene are adopted, in addition to measures devoted to building up the general resistance. A very efficient way of treating patients for extensive acnes of this type is by means of sulphur baths consisting of precipitated sulphur, diluted sulphuric acid and sodium hyposulphate in the bath water. This type of pyodermia should be distinguished from the fulminating types of pyodermia gangrenosa such as were demonstrated at the recent meeting in Rochester, these being due to the combined effect of *Staphylococcus* and *Streptococcus* in persons with lowered resistance due to an underlying debilitating disease.

GENERALIZED PAPULONECROTIC TUBERCULID. Presented by DR. HENRY E. MICHELSON.

A man, aged 40, was presented who for the past twenty years had had papular, ulcerating, crusting lesions on the trunk and extremities. At times there had been two or three hundred lesions present in all stages of development, none of the lesions being larger than 0.5 cm. in diameter. There was also generalized adenopathy. Roentgen rays revealed no tuberculosis of the lungs, but the patient had a discharging tuberculosis colliquativa originating in the cervical glands. The Pirquet reaction was markedly positive, resulting in a necrotic papule. The Wassermann test of the blood was negative. Biopsy showed a dense infiltrate with necrosis in the center and a tuberculid centering about the periphery of the necrosis.

ERYTHEMA PERSTANS. Presented by DR. HENRY E. MICHELSON.

A woman, aged 52, was presented because of urticarial lesions of varying sizes over the entire body. These had been present since August, 1929, until which time she had been perfectly well. There was no itching and the individual lesions persisted for from four or five days to many weeks. There were no vesicles or bullae. Simultaneously with the lesions of the skin there was conjunctivitis, iritis and photophobia. The patient had lost 40 pounds (18.1 Kg.) since the onset of the condition, which may have been due largely to the diet prescribed. There was a marked generalized lymphadenopathy. The liver was enlarged 2 fingerbreadths below the costal margin. The spleen was readily palpable. The Wassermann test of the blood was negative; hemoglobin was 70 per cent; red blood cells, 3,500,000; white blood cells, 5,000; polymorphonuclears, 38 per cent, and lymphocytes, 62 per cent.

Three weeks after the patient was presented, a marked cellulitis of the face and bronchopneumonia developed which terminated fatally.

ACNE CONGLOBATA. Presented by DR. HENRY E. MICHELSON.

A full report of this case will appear in a later issue of the ARCHIVES.

DISCUSSION

DR. HENRY E. MICHELSON: The observations on this case are to be the subject of a paper which will be published in the near future.

DR. S. E. SWEITZER: I think it is interesting to compare the scar existing in this condition with that in certain forms of tuberculosis of the skin.

DR. HAMILTON MONTGOMERY: The sections show an excellent double comedone formation which should help to distinguish such a case from scrofuloderma.

DR. J. M. ARMSTRONG: Would you care to treat this patient with small doses of new tuberculin? I secured results in a case that was similar, but, I admit, not so extensive.

PYODERMIA CHRONICA VEGETANS. Presented by DR. HENRY E. MICHELSON.

A girl, aged 15, stated that six years previous to presentation, she had an osteomyelitis of the right ankle which discharged for a year; during that time she developed deep-seated pustules on the legs, certain areas of the trunk, and the backs of the hands. These lesions began as small pustules which enlarged sometimes to 2 cm. in diameter and drained through a small opening, but they did not disappear. Gradually, the individual lesions became more firm and elevated. At the time of presentation there were some fifty lesions distributed as stated. The lesions consisted of an elevated plaque, bluish-purple, and covered by a thin atrophic epidermis with a small draining sinus in the center. The lesion was hard. Biopsies done on lesions of various ages always revealed a deep-seated chronic suppurative process. Many stains for xanthoma had been done, but all gave negative results. Chemical examination of the blood was negative, and forced fat diet did not influence the lesions. Cultures revealed *Staphylococcus*

and the patient showed a very low grade of agglutination. The treatment was intravenous injections of serum, and sulphur baths. Elimination of foci and improvement had been marked.

DISCUSSION

DR. MICHELSON: We believe that this case should be classified with the cases of chronic pyodermias, it being an example of the vegetating type.

DR. LOUIS A. BRUNSTING: The lesions on the knuckles and elbows were unusual because of their size and distribution. Dr. Wile showed me two cases in Ann Arbor recently exactly similar to this one. The softening of some of the lesions with abscess formation is probably due to a secondary infection.

DR. HAMILTON MONTGOMERY: This patient was first seen in Rochester about two years ago, at which time Dr. Goeckerman and I made a diagnosis of xanthoma. The section which we took at that time, and which you saw when the case was presented before, shows microscopic picture characteristic of xanthoma. In studying the histopathologic process of the disease as well as the clinical picture, it is important to study the advancing margins of the disease process. In these areas of the section, one can see blood vessels in the cutis surrounded by cells that have all the morphology of xanthoma cells. These cells stained with scharlach R contain a brownish-red staining substance, i. e., fatty acids, in contrast to the bright red staining of the neutral fat deeper in the subcutaneous tissue. One can also see small globules of brownish-red substance in the walls of the blood vessel. In this area there are no polymorphonuclear leukocytes or areas of necrosis. Neither is there any evidence of pus formation. As the xanthoma progresses in age, fibrous changes often take place and sometimes there is secondary pyogenic infection, so that the microscopic picture may assume that of fibrosis with inflammatory changes. I believe that this accounts for the failure to demonstrate a true picture of xanthoma in the recent biopsy that was shown tonight. I am familiar with the microscopic picture of fatty deposits occurring microscopically in an area of necrosis in pyodermia. This is not the microscopic picture shown in the present case. I believe this is a definite case of xanthoma and should be studied further from that standpoint.

ERYTHEMA INDURATUM. Presented by DR. HENRY E. MICHELSON.

A woman, aged 28, was presented with two ulcerating lesions of the leg which had been present for a year. There was a definite history of pulmonary tuberculosis about eight years before presentation although roentgenograms at the present time show no active pulmonary pathology. Cutaneous reactions to Moro's tuberculin ointment were strongly positive, while the Pirquet tests resulted in an acute inflammatory reaction which persisted for weeks.

DISCUSSION

DR. E. C. GAGER: At the last meeting I showed a patient with healed lesions on the leg. She is now having another ulcer.

DERMATITIS EXFOLIATIVA. Presented by DR. HENRY E. MICHELSON.

A man, aged 53, was presented with a generalized scaling dermatitis. For the previous five years he had had recurrent attacks of dermatitis involving the hands, arms and face. He was first seen here one year ago with an acute weeping dermatitis of these areas, which responded to treatment. Four months before presentation, he was readmitted with an acute generalized dermatitis and marked adenopathy. The dermatitis had become chronic. The basal metabolic rate on admission was plus 55 per cent; the last test showed 33 per cent. Biopsies of both skin and inguinal glands were indeterminate, showing only chronic inflammation.

DISCUSSION

DR. S. E. SWEITZER: This patient is a kind of roamer; he goes from place to place and gets worse steadily. He started at the University and then came

over to see me at the General Hospital. At that time he had an acute dermatitis of the face and hands, but his body was perfectly free from lesions. He stayed at the hospital a few days and then signed out, but came back three or four days later and was worse.

DR. MICHELSON: We have observed a large number of cases of generalized exfoliative dermatitis following eczema.

DR. JOHN BUTLER: Many pedlers have exfoliative dermatitis. If they are taken off of their wagons for three or four months their condition clears up.

DR. LOUIS A. BRUNSTING: In dermatitis exfoliativa of this type, it is often difficult to get a clue as to the possible etiologic agent. We have recently seen a number of instances in which the presence of arsenic was repeatedly demonstrated in the urine, hair and scales without a history of the administration of arsenic for medical purposes. The nearest we could get to the history of exposure to arsenic was in the use of a spray of arsenate of lead such as is recommended by the Department of Agriculture for the prophylactic treatment of fruits and vegetables. While no direct relationship could be demonstrated aside from these observations, the patients ran a course similar to that of chronic arsenical dermatitis.

DR. HAMILTON MONTGOMERY: The histopathologic picture is that of exfoliative dermatitis, presumably on an eczematoid or an allergic basis. There is no microscopic evidence to suggest a psoriatic etiology nor is there any evidence at present of any of the lymphoblastomas. One cannot distinguish exfoliative dermatitis due to arsenic on the histopathologic picture alone. It is necessary to make special stains for arsenic in the tissue. Arsenical pigmentation, on the other hand, presents a fairly definite histopathologic picture.

PEMPHIGUS VULGARIS. Presented by DR. HENRY E. MICHELSON.

A woman, aged 48, was presented with bullous lesions over the entire body. She had noted sores in her mouth for the first time, five months previously. The sores were followed by the eruption. The lesions tended toward a circinate configuration extending peripherally and leaving a slight pigment in the otherwise normal skin in the center. Some of the early lesions, before bullous formation, showed definite vegetation.

DISCUSSION

DR. PAUL O'LEARY: Some of the members may recall that several years ago, Eberson reported some work on the etiology of pemphigus (ARCH. DERMAT. & SYPH. **8**:204 [Aug.] 1923). Eight patients were treated with a serum made from the organism that he isolated. I inquired of these patients last fall as to the status of their health and learned that two of them were apparently well. Both of the patients reporting as being well, were women. Encouraged somewhat by the reports, while endeavoring to repeat Eberson's work we have started treating patients with pemphigus by foreign protein therapy. I have in the hospital at the present time a woman who presented cutaneous and mucous membrane signs of pemphigus of three months' duration to whom we gave intravenous typhoid vaccine. Following the third injection she developed an extensive erythema multiforme, following which the bullae disappeared. If Dr. Michelson has not outlined a therapeutic program for this patient, I should like to recommend the use of intravenous typhoid vaccine therapy.

DR. HENRY E. MICHELSON: At the present time we have three cases of pemphigus under observation, all of them extremely severe. They are not responding to any treatment we have administered.

DR. S. E. SWEITZER: I had a man come in last week who was in the hospital several years ago with pemphigus. He was given the Davis treatment and became rapidly worse. He was comatose and responded to no stimuli. I expected him to die. Foot-drop also developed. I did not know what else to do, and from the fact that the condition started so much like erythema multiforme, I thought I would give him some salicylates. After two or three days, he began to get better,

and finally the skin healed. The pemphigus and the foot-drop cleared up. Probably the condition was not pemphigus at all, but it certainly looked like it.

LEUKEMIA CUTIS. Presented by DR. HENRY E. MICHELSON.

The patient stated that the cutaneous symptoms began about two years ago on the toes. He was admitted to the hospital in October, 1929, with nodular tumors on the face, arms, thighs, and feet which were much more extensive than at present. The liver was not enlarged and the spleen was not palpable. The blood picture was that of a chronic lymphatic leukemia. During the stay in the hospital the skin tumors underwent considerable involution without any therapy and in spite of an irregular but rising lymphocytosis, the last count showing 156,000 white blood cells.

DISCUSSION

DR. HAMILTON MONTGOMERY: The histopathologic picture is typically that of chronic lymphatic leukemia, showing many small mature lymphocytes as well as a few lymphoblasts.

DR. HENRY E. MICHELSON: This patient is not affected at all so far as his general health is concerned. He stays perfectly well.

A CASE FOR DIAGNOSIS (LYMPHOBLASTOMA?). Presented by DR. H. E. MICHELSON.

The dermatitis began about one year before presentation with a weeping dermatitis involving the legs, hands and arms. The patient was first seen in May, 1929, at which time he had a weeping dermatitis of the face and legs. The skin of the hands and arms was dry and thickened, and that of the body was dry with various sized patches of moist dermatitis and some hyperpigmentation. There was a generalized adenopathy. During his stay in the hospital there was a gradual tendency toward a hyperkeratotic condition. From time to time, circular patches of dermatitis suggestive of mycosis fungoides appeared over the body. These lesions responded well to roentgen therapy. All tests were negative. The blood picture showed neutrophils to be toxic and shifted to the left. The monocytes were toxic and shifted to the right. The picture suggested Hodgkin's disease or tuberculosis, the same picture being often seen in tuberculosis of the lymph nodes.

LUPUS ERYTHEMATOSUS, INVOLVING MUCOUS MEMBRANES. Presented by DR. HENRY E. MICHELSON.

A farmer, aged 21, was presented with lesions about the face, ears, dorsa of the hands and lower lip which had been present for approximately two years. Treatment had been gold sodium thiosulphate administered intravenously, with moderate improvement. A general examination and Pirquet tests yielded negative results.

PHILADELPHIA DERMATOLOGICAL SOCIETY

C. S. WRIGHT, M.D., *Secretary*

Feb. 7, 1930

A. STRAUSS, M.D., *Presiding*

A CASE FOR DIAGNOSIS. Presented by DR. A. STRAUSS.

A woman, aged 37, in August, 1929, presented an eruption covering the face and arms, of six years' duration. A diagnosis of lupus erythematosus was made. Under treatment with gold and sodium thiosulphate the eruption promptly cleared up, except for some atrophy on the arms and face. Afterward a number of

furuncles developed and later disappeared, and then the eruption shown at the second presentation appeared. A diagnosis of fixed gold eruption was made, and the eruption had been stationary since that time.

DISCUSSION

DR. J. F. SCHAMBERG: This is an interesting case because of the unusual character of the eruption on the back of the neck, the back and the chest. I think that she has a recurrent lupus erythematosus on the side of the face posterior to the scar from a former patch. The remainder of the eruption appears to consist of papulonodules which are relatively soft, and there is doubt concerning their nature. It is an unusual type of eruption for lupus erythematosus, and an unusual one for a gold eruption. One would have to consider the possibility of these nodules being due to some other form of tuberculosis. I think that no absolute diagnosis can be made at the present time, but the case will have to be watched. I should suggest the reinauguration of treatment with a gold compound to observe its effect on the recurring lupus and on the papulonodular eruption.

DR. S. S. GREENBAUM: If this is another form of tuberculosis infection, it might be well to remove a section for inoculation into a guinea-pig. Perhaps in this type of lesion you will find some factor that is not found in ordinary cases of lupus erythematosus.

DR. F. D. WEIDMAN: I agree that there seem to be two kinds of lesions present, one which indicates a recurrence of the condition which is of the same type as that seen in lupus erythematosus, and the second type which Dr. Schamberg described, the small nodular infiltration. The rather limited appearance on either side of the midline, both front and back is of interest; that is, there is an axial tendency. Recently I examined a patient of Dr. Gilman's with pemphigoid lupus erythematosus, a case shown here not long ago. I recall that there was the same tendency in that case. Dr. Gilman also reviewed with me the original article and illustrations of Senear-Usher, and the lesions in those cases also had a tendency toward an axial position; we wondered whether there was some nerve factor in the case. It strikes me that so far as the posterior parts are concerned, reflex branches of the intercostal nerves are distributed to the location of this eruption, and if one could imagine such a fantastic thing as a neuroselectivity of gold compounds, one might have the answer to this phenomenon. For instance, we all know that gold is a valuable adjunct to the neurologist in staining nerve tissues (not that the chemistry of living nervous tissues is the same as that with which the neuropathologist works). Still, the neurologist's technic of treatment with gold could be easily modified (the gold omitted) to determine whether or not there is gold in the nerve trunks in patients treated with a gold compound.

DR. A. STRAUSS: I am rather glad Dr. Weidman mentioned the point of location. The eruption is confined to exposed parts. The patient gave a history of going to the shore after getting rid of the lupus erythematosus, and she wore a V-shaped bathing suit. Thus the eruption appeared where the skin was exposed to the sun. The theory that the gold is fixed there by the sunlight as it is in photography is not fantastic and may have some bearing on the eruption.

DR. S. S. GREENBAUM: I have a faint recollection of having seen an eruption like this in a patient with lupus erythematosus after ultraviolet radiation. Of course it is well known that patches of lupus erythematosus are photosensitive.

EPIDERMOLYSIS BULLOSA. Presented by DR. DRANT.

A man, aged 53, married, had two children who were well. There was no history of skin trouble in the family. When the patient was 3 years old, he was given some milk from a glass and became violently ill, and afterward the skin

began to break out with large bullae. He had no finger-nails at the time of presentation; the history is that numerous sets of nails grew but that they came off. There was extensive scarring of the hands and numerous scars over the other exposed portions of the body. The urinalysis gave normal results; the chemical analysis of the blood gave normal results; the basal metabolism was 38 plus. He had had strictures of the esophagus twice, which Dr. Stout treated.

DISCUSSION

DR. STOUT (by invitation): Three years ago this man came to me with an almost complete closure of his esophagus; he could not even swallow his saliva and he could not open his mouth. By using the old type olive tip bougie I was able to open the passage. There appeared to be two strictures, and after many efforts I finally inserted a fairly large bougie. Since then he has been able to swallow. That treatment was twenty-five years after his first stricture. The condition started when he was 7 years of age. He could not eat solid things.

DR. J. F. SCHAMBERG: The diagnosis is quite clear. The unusual feature about it is the involvement of the mucous membranes. I do not recall any other case of epidermolysis bullosa in which there were lesions of the mucous membranes. I have no doubt that blebs formed and were followed by atrophic and cicatricial tissue. The point of interest in the case is the high metabolic rate. I think it would be well to repeat that test in order to make sure about it. If the rate of metabolism is still high, that would be an indication for treatment along those lines. No one knows anything about direct treatment of the epidermolysis bullosa. Loss of finger-nails is characteristic. Frequently the face is not as much involved as the bony regions, such as the knuckles and the elbows.

DR. F. D. WEIDMAN: It is in order to imagine how far down the esophagus the condition is going. I am rather intrigued at the senile type of his skin. I think that it would be good to ascertain whether that condition is part of the disease or whether it is incidental to the difficulties he has had with nutrition, beginning in early life. I can understand the mechanism of the loss of the finger-nails, after an attack of epidermophytosis on my own feet. Several successive blebs developing under the free margin of the nail and adjacent to it have changed the keratinizing properties of the nail-bed. Of course when that occurs repeatedly, the nail retreats on each attack; this finally leads to the stage in which the nail is not regenerated at all and one says the nail has been lost.

PARAPSORIASIS LICHENOIDES CHRONICA. Presented by DR. HERBERT SMITH.

M. G., a man, aged 19, stated that an eruption appeared in August, 1927, one month after severe sunburn on the arms, back and chest. Red spots appeared on the chest first, then two or three days later on the flexor surface of the forearms. The eruption gradually spread to the whole surface except the face, palms, penis and scrotum. There was no itching. Fine scales were noticed when the eruption became general. The papules receded in color and size under the influence of potassium arsenite. The papules and scaling were most pronounced in August, 1929. There was a generalized, erythematous, papular eruption with fine scales which separated easily, exposing shiny erythematous papules. The biopsy report was "subacute dermatitis." The Wassermann reaction was negative. The chemical analysis of the blood was: sugar 89, uric acid 4 and urea 19.

DISCUSSION

DR. S. S. GREENBAUM: I think that this is a case of guttate parapsoriasis and I should suggest the use of pilocarpine hydrochloride.

DR. J. F. SCHAMBERG: This case is unusual, but I am rather inclined to regard it as a parapsoriasis of the type described by Juliusberg as the lichenoid

and psoriatic type. The patient had no itching; it apparently is not a true case of psoriasis, and it fits into the category of parapsoriasis as well as any case I know of.

DR. H. SMITH: I should like to add that this eruption has changed much in a year's time. A year ago I had no doubt in making a diagnosis of lichen planus. There was no scaliness at all; the papules were rather large, flat and discrete. Of course I have changed my diagnosis completely now since the eruption has changed decidedly. Arsenic was administered for three months and the eruption almost disappeared. The patient returned in six months, worse than before.

DR. F. D. WEIDMAN: At the time I saw the histologic sections the patient was in the stage of the attack in which the condition resembled lichen planus more than at present, but when I saw the sections I said rather definitely that it was not lichen planus and that parapsoriasis could be excluded but not psoriasis or eczema. It was a nonspecific-appearing, subacute dermatitis. The clinical complex does fit in with that of parapsoriasis, but I am somewhat biased on account of the histologic examination. In parapsoriasis there are almost invariably changes in the basal cells that are more or less pathognomonic, or at least fit in with the description of parapsoriasis. The statement that the condition cleared up under treatment with arsenic is not quite in keeping with the idea of parapsoriasis. Of course I suppose one can get vagaries of parapsoriasis histologically; and if this is parapsoriasis, it is only another of those factors that add to the complexity of this interesting case.

LUPUS VULGARIS. Presented by DR. J. V. KLAUDER.

A woman, aged 58, born in Sweden, was shown about one year prior to this presentation. At that time she had an extensive involvement of the face, with scattered areas on the body. The lesions were nonulcerative. The disease began at the age of 22. There was no evidence of constitutional tuberculosis. She was shown now because of the considerable improvement in her case, perhaps 50 per cent. Some of the lesions on the extremities had involuted. Gold arsphenamine prepared by Dr. George Raiziss for clinical study was employed in treatment. It was injected intravenously in doses of about 0.1 Gm. Thirty injections were given. Other treatment was dietetic and hygienic, and universal applications of the ultraviolet ray to the extent of tanning the skin. The patient had gained in weight.

DISCUSSION

DR. J. F. SCHAMBERG: The case presented seems to be considerably improved by treatment with gold arsphenamine. This is interesting in view of the fact that it may cast additional light on the nature of lupus erythematosus. If gold therapy under certain conditions will improve a frankly tuberculous condition such as lupus vulgaris, then the improvement which is seen so commonly in lupus erythematosus under treatment with a gold compound may be due to a similar mode of action. Gold arsphenamine made by Dr. Raiziss was first used in research laboratories in cases of lupus erythematosus some years ago, but because of a greater liability to reactions from this compound, other gold preparations were employed; however, I think the result that has been achieved in this case should encourage further trial of it in lupus vulgaris, in which it may conceivably yield better results than the gold and sodium thiosulphate.

DR. F. D. WEIDMAN: I should like to ask whether the condition has appeared like this from the very beginning and whether there was ever much more scale than now.

DR. J. V. KLAUDER: No, it was much worse in the five years prior to the time at which I first saw the patient. The patches are now less infiltrated and less elevated.

DR. F. D. WEIDMAN: What I was leading up to was whether this condition ever took the form of lupus vulgaris known as lupus erythematodes of Leloir. On the face there is almost the butterfly configuration, and I was wondering whether that indicated the success of the gold therapy. At present it is more "tumidus" than "erythematodes."

LICHEN NITIDUS. Presented by DR. S. KATZ.

This man had itching over the body. The eruption was scabetic but the general examination revealed on the glans penis flat, shiny papules which the patient had had for thirty-five years. There were no other single lesions on the body. The blood count was negative, and the tests of the urine and feces gave negative results.

DISCUSSION

DR. J. V. KLAUDER: I regard the eruption as lichen planus.

DR. S. S. GREENBAUM: I believe that this is an abortive form of lichen nitidus Pinkus. The lesions have been there for a long time, are skin colored and do not itch.

DR. F. D. WEIDMAN: Lichen planus was the first diagnosis that occurred to me. I took pains to stretch the skin, and there was no infiltration. The lesions look like extremely superficial keratoses, more like a leukoplakic condition—multiple hyperkeratoses. The urine should be examined for possible kidney disease as a focus of irritation.

MYCOSIS FUNGOIDES. Presented by DR. J. F. SCHAMBERG and DR. C. S. WRIGHT.

M. M., aged 48, presented sharply marginated borders of erythema on his entire trunk and elevated infiltrations on the neck and arms. The interesting feature of the case was that within a month of its first appearance he had a tumor-like lesion on the abdomen. This was early, as you will observe. He had had a great amount of itching, but since he arrived in Philadelphia ten days ago, the itching had been reduced 50 per cent under the combined use of the roentgen ray and of the daily intravenous injection of a new arsenic dyestuff made in our institute. I have formed no positive opinion concerning the cause of the reduction of itching. It may be due to the roentgen ray or the intravenous medication, or both, but the case was presented as one of granuloma fungoides which had markedly improved under the treatment outlined. I may say that he consulted a dermatologist in his home city who did not make the diagnosis, but his own family physician had a lesion excised and the diagnosis of lymphoblastoma was made. The patient had gained eight pounds (3.48 Kg.) in the past ten days. That may have been due to his inactivity and to improved sleep. On leaving the city a short time after presentation he was free from itching and virtually free from eruption.

DISCUSSION

DR. C. S. WRIGHT: I have been observing the man daily since he has been here and can appreciate how much more comfortable he is. Of course, we realize that roentgen therapy alone will cause a partial or complete disappearance of the eruption for a time, and I am inclined to believe that that is an important factor in lessening this man's itching. The eruption is somewhat better, but of course ten days is too short a time to expect marked improvement from the use of the roentgen ray.

DR. S. S. GREENBAUM: I have often wondered whether nonspecific therapy in the form of Coley's fluid would not be helpful since the condition is thought to be allied to the lymphosarcomas. I have a patient like this now in whom the

eruption cleared up practically completely under the use of the roentgen ray alone, which of course is nothing unusual.

DR. J. V. KLAUDER: There have been two or three cases of mycosis fungoides reported as cured in the literature following an intercurrent infection, such as pneumonia or erysipelas, and it is not inconsistent with Dr. Greenbaum's thought. Perhaps inoculation with malaria may be helpful. In view of the fact that the prognosis of mycosis fungoides is bad, any procedure that offers a reasonable hope of cure or amelioration is justified.

A CASE FOR DIAGNOSIS. Presented by DR. DRANT.

A man, aged 65, came to this country about one and one-half years ago. In August a lesion that looked like an insect bite developed on his left arm and shortly afterward a second one occurred. The large lesion which he showed at presentation had developed from the two, small, apparently insignificant lesions. The color and induration were first observed in December.

DISCUSSION

DR. F. D. WEIDMAN: The history of an insect bite makes one think of sporotrichosis followed by blastomycosis; I believe that by this time suppuration would be more definitely established. All things considered, the tissue resembles tumid lupus. I should not care to make a diagnosis. It is a prime case for biopsy.

DR. J. F. SCHAMBERG: I agree that the diagnosis here is far from easy. I do not want to commit myself to an absolute diagnosis. I do not know whether we have a right to accept fully the statement that this started from an insect bite. He does not appear to have an excess of intelligence. It might be an assumption on his part. The condition has a somewhat tuberculous appearance and texture. There is marked infiltration of an elastic character and I should be rather inclined to regard it as a form of tuberculosis, possibly an unusual type of sarcoid.

DR. J. V. KLAUDER: The India-rubber texture suggested to me a tuberculid; I also thought of sarcoid, possibly of the Darier-Roussy type.

ERYTHEMA ACTINICUM. Presented by DR. S. S. GREENBAUM.

A man, aged 62 years, had had this condition since the age of 11. On Jan. 10, 1930, he came to the clinic complaining of itching and redness of the hands, neck and face whenever he was out in the air in daylight. The condition became worse in summer. The exposed parts became red and remained so fifteen minutes after getting indoors. After he had been outside, the forehead and hands were deeply erythematous. We exposed a small area of his skin that same day to ultraviolet light and there was no reaction. The second exposure at a distance of 10 inches (25.4 cm.) for one minute produced a definite erythema. The same treatment on my own arm produced neither erythema nor itching.

The chemical analysis of the blood was as follows: sugar 96, uric acid 3 and blood urea 13. The blood count showed: red cells, 5,200,000; white cells, 7,000; hemoglobin, 100 per cent; lymphocytes, 45; polymorphonuclears, 45, and eosinophils, 4. The blood pressure was 165 systolic and 80 diastolic. The blood bilirubin by indirect test showed 0.7 mg.; the normal was up to 0.3. The cholesterol amounted to 180 mg.

The patient was given four autohemic treatments between January 10 and February 2, without any relief from the itching or erythema. On February 5, a 5 per cent solution of quinine hydrochloride was rubbed on to the forehead and the back of the right hand, but the erythema became worse on exposure to sunlight, although there was slight relief from the itching. Half an hour afterward the itching was worse than before.

DR. F. D. WEIDMAN: Dr. Pond studied the case of a high class engineer who in turn had studied himself very carefully, and suspected that the cause of his light sensitiveness was aspirin. He was so sensitive that he had to change his business habits accordingly. Dr. Pond was able definitely to measure the sensitivity of his skin: The erythema threshold was constant and the urticarial reaction was constant qualitatively and quantitatively in scores of tests.

DR. S. S. GREENBAUM: I think that this case is interesting, particularly because of its rarity. I do not recall seeing a case of this erythematous type before. It is particularly interesting, too, because we have definitely shown its relation to the rays of the sun and to the artificial sunlight. For a long time quinine put up in lotions and salves has been advocated as a prophylactic for sunburn. It was demonstrated in this patient that quinine on the outside of the skin is not protective to the actinic rays of the sun. The case probably represents the erythematous stage of the eczema solari described by Barber several years ago. I doubt whether more than half a dozen cases are on record. It is probably related to the so-called cheilitis actinium (sun-burnt lip) which occurs on the coast here and in the southern states. It has been assumed (I doubt whether it has been actually demonstrated) that the substances are photodynamic, that they are circulating in the peripheral capillaries and that they are amino-acids.

A CASE OF ACROCYANOSIS PERNIO. Presented by DR. M. CORNFELD for DR. S. S. GREENBAUM.

A girl, aged 15, was subnormal mentally. She first began to walk at 2 years; her first tooth appeared at 1½ years. The chemical analysis of the blood gave normal results. The Wassermann reaction was negative and urinalysis gave negative results. She came to the skin clinic of Mount Sinai Hospital two weeks ago with a complaint of pain in the legs and redness, of six months' duration; she presented bluish red spots on both legs. Two weeks ago blebs formed which cleared up. No test of basal metabolism was made. There was a possibility of endocrine disturbance. A roentgenogram of the sella turcica was negative.

SYPHILITIC ENDARTERITIS. Presented by DR. J. H. STOKES.

A colored man, aged 45, born in this country, presented a disease of the fingers with destruction of the finger-nails of six years' duration. The finger of one hand was gangrenous and had been amputated. The skin over all the other fingers was atrophic; the nails of some were absent. One distal phalanx was amputated five years before because of gangrene. There was a burning sensation; a tentative diagnosis of Raynaud's disease was made, although this disease is rare in the male, particularly in the negro. The diagnosis of Raynaud's disease was not confirmed by the neurologic clinic of the University of Pennsylvania Hospital. Because of a 4 plus Wassermann reaction, a diagnosis of syphilitic endarteritis was made. The patient subsequently received eight injections of sulpharsphenamine bismuth and potassium iodide. Following this treatment the subjective symptoms entirely disappeared.

DISCUSSION

DR. J. F. SCHAMBERG: This case is unusual because, considering the large number of cases of syphilis that one sees, particularly in this race, it is rare to see such marked digital gangrene and circulatory disturbance as appear in this patient. I imagine that the condition is due to a thrombo-angiitis or endarteritis, an appearance which somewhat resembles that seen in Hansen's disease with terminal dry gangrene, but which is rare in syphilis. I do not believe that it is a true case of Raynaud's disease.

DR. S. S. GREENBAUM: The therapeutic test ought to indicate whether or not this is a syphilitic endarteritis.

DR. F. D. WEIDMAN: The type of nail and the dystrophic condition at the tips of the finger—the shoepeg type of nail—makes one think of a neurogenous factor. However, there is no flattening of the thenar eminence as seen in Hansen's disease. I have seen marked improvement in what appeared to be ordinary eczema of the hand of a miner who had an injury around the wrist (there was no pulse at all in the radial arteries). I referred the case to Dr. Muller for periarterial sympathectomy, but instead he performed an arterial anastomosis. When the patient was discharged the eczema had entirely disappeared.

MANHATTAN DERMATOLOGICAL SOCIETY

MIHRAN B. PAROUNAGIAN, M.D., *Secretary*

Feb. 11, 1930

DAVID L. SATENSTEIN, M.D., *Chairman*

SYCOSIS VULGARIS. Presented by DR. ANDREW J. GILMOUR.

B. G., a man, aged 36, presented a typical sycosis vulgaris of the bearded region, of four years' duration. He had received treatment with ointments and epilatory doses of roentgen ray. The eruption had continued, and when the patient was presented, there was considerable dermatitis of the glabrous portions of the face. The case was presented for therapeutic suggestions.

DISCUSSION

DR. PAUL E. BECHET: This particular dermatosis belongs to a large group and is not uncommon, but it is extremely resistant to treatment. The disease in the beginning is indistinguishable from seborrheic eczema; then through secondary infection, and a lowered resistance on the part of the patient, a pustular folliculitis develops, with at times considerable scaling. I have been greatly disappointed in its therapy, but it seems to me that improvement follows more frequently after the injection of foreign proteins than with any other method of treatment. It is a mistake to use strong local applications; patients do better with mild local measures.

DR. MAX SCHEER: I may mention one case of sycosis vulgaris of two years' duration in which the upper lip of the patient was treated with intravenous injections of sodium iodide. He had previously had treatment with roentgen rays, ultraviolet light, vaccines, salves, etc. The patient has remained well for nearly a year after the treatment with iodide. He received about fifteen weekly injections of 1 Gm. of sodium iodide in 10 cc. of distilled water. It is possible that the administration of iodine by means of the ethyl iodide apparatus described by Dr. Schwartz of Boston would be worth while trying in these cases.

DR. GEORGE C. ANDREWS, JR.: I think that the eczema is of secondary importance. I would treat the condition as sycosis, using one-half doses of thallium acetate, and roentgen rays to epilate the beard. If we remove all the hair, it offers the patient a chance for cure.

DR. DAVID L. SATENSTEIN: I think that there has been too much treatment. Discontinue local treatment for a time. I think constitutional care is as of much importance as the care of the skin, and sometimes it is more important.

DR. GEORGE C. ANDREWS, JR.: Thallium is used in the treatment of the beard as well as the scalp. One-half dose or one-third dose will do frequently without roentgen treatment.

LUPUS ERYTHEMATOSUS AND PSORIASIS. Presented by DR. GEORGE C. ANDREWS, JR.

T. G., a man, aged 50, had had psoriasis of the scalp, elbows and knees for several years and had typical lesions at the time of presentation. He also had a patch on the left pre-auricular region which had begun five years before presentation as a scaly red spot and had been treated twice by intensive doses of beta rays of radium; this treatment caused the spot to disappear, but it recurred and the condition was diagnosed as lupus erythematosus. The patient received fifty injections of gold and sodium thiosulphate, the dose being from 50 to 100 mg. each treatment. He also had several roentgen treatments on the affected area which had, in addition, been cauterized several times with acid. At presentation there was an atrophic, depressed patch 3 cm. in diameter with two superficially ulcerated spots in the central portion. At one edge there was an erythematous spot covered by adherent scales. Clinically, the lesion might have been either chronic radiodermatitis or lupus erythematosus. Microscopic examination showed hyperkeratosis, particularly prominent about the follicles, and a lymphocytic infiltration in the upper corium where the lymphatic spaces were greatly dilated. There was a slightly basophilic degeneration of the active tissue. The histologic diagnosis was lupus erythematosus.

DISCUSSION

DR. LOUIS B. MOUNT: I would be tempted to freeze the lesion.

DR. LUDWIG OULMANN: I agree with Dr. Mount that freezing would be the best treatment. The lesion is circumscribed not too big and sufficiently below the eye.

DR. PAUL E. BECHET: In resistant cases, the patients seem to improve more quickly with a change of gold preparation. There is considerable radiodermatitis; therefore, I suggest excision.

DR. MAX SCHEER: I think the lesion has been overtreated. It had best be let entirely alone except for the use of some simple soothing application like boric acid.

DR. ISADORE ROSEN: I do not agree with the diagnosis of lupus erythematosus. I think that the patient had an old patch of psoriasis of the face which was not recognized as such, and was treated with roentgen ray and radium. My diagnosis of the present lesion is epithelioma.

DR. FRED WISE: I shall discuss the patient from the standpoint that the histologic diagnosis of lupus erythematosus is correct. If it is, then I should agree with the opinion of Dr. Mount to stop treating the lesions with injections, because the patient has had a great many injections without benefit. I should treat him radically with solid carbon dioxide and destroy the lesions locally if possible.

DR. MIHRAN B. PAROUNAGIAN: I think Dr. Rosen's statement was an expression of my feeling in the matter. I think that the lesion should be regarded with the suspicion that it may be an epithelioma and that probably the other lesions are psoriasis lesions. I should be afraid to destroy the lesion with refrigeration. I think we should watch the patient and determine his reactions to milder applications.

HODGKIN'S DISEASE. Presented by DR. GEORGE C. ANDREWS, JR.

A. N., a woman, aged 34, had had a gland removed from the right side of her neck three years prior to presentation, and examination of this led to a diagnosis of Hodgkin's disease. The first symptom had been generalized itching which had begun a year previous to the operation, while the patient was pregnant. The pruritus had been so severe that the patient had not been able to sleep, and she had been treated with roentgen rays and ultraviolet light without improvement. At times there had been urticaria. She lost 18 pounds (8.2 Kg.) during

the previous year. Roentgenograms of the chest showed profuse involvement of the mediastinal glands and tumors in both lungs.

XANTHOMA DIABETICORUM AND ACROMEGALY. Presented by DR. MIHRAN B. PAROUNAGIAN.

N. N., a man, aged 37, an Italian, was admitted to the Bellevue Hospital Clinic on Feb. 5, 1930. He presented a number of round, discrete, elevated, yellowish papules, most marked on the upper extremities and less marked on the lower extremities. The duration was eleven months. Examination of the urine showed a large amount of sugar, it was negative for albumin. Qualitatively, by polariscope, the urine contained 5.6 per cent dextrorotatory sugar, probably dextrose. The abdomen was distended, probably containing considerable fluid. In addition to these conditions the patient presented a typical picture of acromegaly. His face was large, and the lips and eyelids were thick. The hands were large, and other parts showed hypertrophic thickening.

VINCENT'S ANGINA. Presented by DR. MIHRAN B. PAROUNAGIAN.

S. M., a maried woman, aged 38, was referred to the Bellevue Hospital Clinic from the dental department of the Hospital on Jan. 24, 1920. Examination revealed a deep ulcer on the hard palate (left side), irregular in outline, the edges somewhat raised, with considerable erythema at the periphery and a necrotic floor. The duration had been about two weeks. The Wassermann test was negative on two occasions. Smears showed numerous Vincent's organisms.

The patient was treated with three small doses of neoarsphenamine and local applications of sodium perborate, and also peroxide mouth washes. The lesion was much improved when examined on the afternoon of Feb. 11, 1930. She also showed erosions of the gums.

DISCUSSION

DR. ISADORE ROSEN: I think that the unusual feature of the case is the absence of bleeding gums which occurs in almost all Vincent infections of the mouth. I would call attention to the sub-shaped edematous papillae between the teeth which is also characteristic of the infection.

DR. DAVID L. SATENSTEIN: I do not believe the local therapy alone is any good unless massaged in. We treated a patient locally with 10 per cent arsphenamine in glycerin but could get no good results. When using a rubber tooth brush, we began to get good results.

At times it is different to identify the refrigens lesions by dark-field examination. They take the methylene blue stain readily, which is one way to differentiate them from pallida lesions.

FRAMBESIFORM SYPHILIDE. Presented by DR. FRED WISE.

A man, aged 32, a native of Italy, presented the scar of a chancre on the penis. He had been receiving treatment at the Post-Graduate Hospital Clinic. On the face and scalp were scattered vegetative lesions varying in size from ½ to 1 inch in diameter; these were of six weeks' duration. The Wassermann test was positive.

CLINICAL GUMMA, HISTOLOGIC TUBERCULOSIS. Presented by DR. ISADORE ROSEN.

The patient was presented at the New York Academy of Medicine, before the Dermatological Section, January, 1930. The disease had then been diagnosed as gumma of the sternoclavicular region. The microscopic examination showed tuberculosis.

DISCUSSION

DR. ISADORE ROSEN: On account of the slow response to syphilitic therapy, a microscopic examination was decided on. Dr. Satenstein reported tuberculosis. I thought that in spite of this interpretation of the histologic observations, the process was syphilitic. The previous large, boggy, fluctuating mass located in the sternoclavicular region, with a cleancut ulceration which is slowly healing, was a gumma. This sluggish response to treatment is probably due to the age and physical condition of the patient. The tissues of old age do not respond as readily as those of youth.

DR. MIHRAN B. PAROUNAGIAN: I recall the case well. I discussed it at the Academy meeting, and I said that it was a good location for gumma, but clinically the picture speaks against it. My opinion was that it was a neoplasm, and my opinion is the same now.

PARAFFIN KERATOSIS AND EPITHELIOMA. Presented by DR. FRED WISE.

M. O., a man, aged 64, attending the Post-Graduate Clinic, had been working for forty years with an oil concern, and had had his hands and forearms immersed in various kinds of mineral oils, day after day for long periods of time. He presented several dozen crusted and scaly keratoses on the hands and forearms, together with numerous telangiectases and depressed atrophic spots. On the backs of both hands and wrists were two well developed epitheliomas which had been present for about a year. The entire picture greatly simulated an old radiodermatitis. The patient stated that other workers in the same branch of the factory were suffering from a similar dermatitis.

DISCUSSION

DR. LOUIS B. MOUNT: The striking feature of the picture is the marked similarity of the condition to roentgen-ray dermatitis.

DR. DAVID L. SATENSTEIN: The keratoses are similar to nodular dermatitis developing from irradiation.

DR. GEORGE C. ANDREWS, JR.: I think it is unusual to see skin affected in this way by paraffin. Ullmann gives an excellent picture of this condition in his monograph. It is rare in this country, I think.

DR. DAVID L. SATENSTEIN: I believe it is due to acids present in the crude liquid petrolatum. All crude oils contain impurities.

ARSPHENAMINE DERMATITIS AND JAUNDICE. Presented by DR. MIHRAN B. PAROUNAGIAN.

J. M., a man, aged 21, had been referred to the Bellevue Hospital Clinic on Jan. 31, 1930, with a chancre on the prepuce of three weeks' duration. Dark-field examination was positive; the Wassermann reaction was negative.

Treatment was instituted on January 15, and the patient received four injections of mercury salicylate and four of neoarsphenamine up to and including February 5. The next day after an injection of neoarsphenamine he developed a generalized dermatitis. He stated that he had had a fever and nausea. The eruption was macular and purpuric. He also showed slight jaundice. Treatment was discontinued.

PERIPHLEBITIS NODULARIS NECROTISANS. Presented by DR. WISE.

G. M., had been previously presented by Dr. MacKee before the New York Dermatological Society, January, 1930.

DISCUSSION

DR. DAVID L. SATENSTEIN: We found nothing suggestive of tuberculosis; there was no tuberculous or granulation tissue, but necrotic zones around the deep vessels.

DR. LUDWIG OULMANN: Some of the scars with deep pigmentation are suggestive of a syphilitic process.

DR. ANDREW J. GILMOUR: I think that he should be sent to the country; that would do more good than local treatment.

DR. GEORGE C. ANDREWS, JR.: I advise injections of milk or a gold compound.

DR. LOUIS B. MOUNT: I agree with Dr. Gilmour.

DR. PAUL E. BECHET: This boy presents indolent, rather superficial ulcerations, somewhat typical of the ulcers formed after the breaking down of the indurations of typical Bazin's disease. Periphlebitis nodularis necrotisans may or may not be an aberrant type of Bazin's disease, but I believe that clinically it is a distinct entity. The cases in which this diagnosis has been made seemed to me entirely different from Dr. Wise's case. My own case, so diagnosed by most of the members of the New York Dermatological Society, presented nodules arranged in beadlike formation, and subcutaneous tumefactions which left a depressed, dimpled skin as they disappeared. Another case presented exactly the same clinical features. None of the lesions broke down and ulcerated. This disease therefore seems to be made up of beadlike subcutaneous nodules, with at times boardlike infiltrations beneath the skin, with no tendency to breaking down, as in typical Bazin's disease. If Dr. Satenstein can demonstrate that this disease differs entirely from Bazin's disease, it would eliminate much of the confusion now existent.

SYPHILITIC SUPERINFECTION. Presented by DR. MIHRAN B. PAROUNAGIAN.

L. C., a man, aged 39, was admitted to the Bellevue Hospital Clinic on Sept. 24, 1929. He presented a penoscrotal chancre, roseola, and a four plus Wassermann reaction. Treatment with ten injections of mercury salicylate and eight of neoarsphenamine was instituted. His last treatment was on Dec. 10, 1929. He discontinued treatment of his own accord.

He returned the day before presentation with a new chancre of about ten days' duration on the ventral aspect of the shaft of the penis. He had been exposed three weeks prior to the appearance of the new lesion. Dark-field examination was positive, and clinically the lesion was typical of chancre. The Wassermann test had not yet been reported.

MULTIPLE CHANCRES. Presented by DR. MIHRAN B. PAROUNAGIAN.

W. D., a Negro, aged 26, was referred to the Bellevue Hospital Clinic a day before presentation with a four plus Wassermann reaction. He gave a history that was rather vague, and he admitted frequent exposures. Examination revealed a generalized papular eruption and two distinct chancres, one on the left side of the shaft of the penis and the other on the scrotum on the opposing surface.

The patient claimed that the penile sore appeared first and the scrotal lesion about three weeks later. The skin lesions were said to be of three weeks' duration. He had had no treatment. He also had a well marked hernia and double inguinal adenitis.

LUPUS ERYTHEMATOSUS. Presented by DR. MIHRAN B. PAROUNAGIAN.

T. S., a man, aged 42, had had lupus erythematosus of the face, arms and feet for seven months. His tonsils had been removed, and he had received twenty-four injections of a gold compound, 0.05 Gm., and two injections of 0.75 Gm. The injections improved most of the lesions and cleared some of them up. The last injection was given about six days prior to presentation. The injections, according to the patient's statement, were given three times a week. He was feeling well until he had an operation on the jaw for an infected tooth, and since then the lesions had been much worse, and he had lost about 15 pounds (6.8 Kg.) in weight. He was presented for therapeutic suggestions.

DISCUSSION

DR. FRED WISE: It has been suggested that in cases of lupus erythematosus that do not respond favorably to injections of gold compounds, the use of silver arsphenamine is sometimes of benefit if the injections are used alternately with the gold solution.

DR. PAUL E. BECHET: It is a good idea to change the preparation of gold used. I think that the patient could stand 100 mg. of the Abbott's preparation once a week. The patient gave a history of being outdoors most of the summer, and said that the eruption was always worse at the end of the warm season. He should be warned to expose himself as little as possible to actinic light, as these rays frequently cause a spread of the disease.

DR. DAVID L. SATENSTEIN: I would stop all treatment for the lupus erythematosus at once. The patient's general condition should be looked after.

LICHENOID SYPHILID. Presented by DR. GEORGE C. ANDREWS, JR.

CHANCRE OF THE LIP. Presented by DR. MIHRAN B. PAROUNAGIAN.

SECONDARY SYPHILIS (SEVERE). Presented by DR. MIHRAN B. PAROUNAGIAN.

RECURRENT SYPHILID. Presented by DR. MIHRAN B. PAROUNAGIAN.

LUPUS ERYTHEMATOSUS AND ADENITIS. Presented by DR. MIHRAN B. PAROUNAGIAN.

NEW ENGLAND DERMATOLOGICAL SOCIETY

RUDOLPH JACOBY, M.D., *Secretary*

Regular Meeting, Feb. 12, 1930

WALTER T. GARFIELD, M.D., *Presiding*

ERYTHEMA MULTIFORME (?). Presented by DR. MCCARTHY.

E. S., a girl, aged 18, had had no previous illness other than stomach trouble. This had been characterized by long periods of pain in the abdomen. None had occurred during the previous months. No eruption had occurred. The present illness began the fall before, with an eruption on the backs of both legs, involving the regions about both heels and extending up in the region of both calves. In recent weeks there had been itching. The area had definitely spread during the two or three weeks before presentation. The patient showed a nodular eruption involving both legs, extending from the heel and the lower third of the posterior aspect. The lesions also involved the external surface of both feet, with a few lesions on the soles. The more recent eruption was relatively superficial and somewhat violaceous.

DISCUSSION

DR. E. L. OLIVER: A particular feature was the very poor peripheral circulation, which suggests erythema induratum. I do not think that we can make that diagnosis without there being infiltration. I think the main factor, the extremely poor peripheral circulation, gave rise to these lesions in some way.

DR. R. JACOBY: That case seemed to me to be one of erythema induratum. It occurred to me that I might make a suggestion as to the treatment. I have treated four patients with gold sodium thiosulphate with remarkable results.

DR. TOWLE: I cannot agree with the diagnosis of erythema induratum. There is no infiltration. The skin does not change on pressure; the condition embeds

itself completely, and the color disappears absolutely. On slight pressure many ruddy vessels appeared that were much like telangiectases. There was a marked disturbance of the circulatory process. The question of erythema induratum is raised by the situation of the lesions. Other than that I can see no resemblance.

DR. LANE: I think that we see eruptions on the hands, at intervals, that are apparently in this group, to which some of the textbooks have attached the name lupus pernio. They are on hands with very poor circulation; the areas are purplish, but with deeper purple spots the color coming back very slowly under pressure. The condition has definitely been worse at one time. The existing spots are not painful, and do not show induration. While I think that condition is extremely indefinite, it struck me as being like this case, although I have not seen lupus pernio on the ankles.

DR. SWARTZ: I would suggest forcing calcium and giving sunlight therapy to improve the circulation and avoiding any constriction around the thighs and extremities.

DR. MCCARTHY: We were seeking a name for the lesion. Dr. Lane has suggested one. I had written multiforme with a question mark. Lupus pernio seems nearer to the condition than erythema multiforme. Whether we could call it chronic pernio without the lupus I do not know. It was definitely indurated a week before presentation; today it shows practically no induration.

HYGROMATA (?). Presented by DR. B. APPEL.

L. M., a white woman, married, aged 32, living at home, presented a condition on the hands of three years' duration. This began as small, pea-sized, hard, painless, nontender, subcutaneous nodules on the flexor surface of the right index finger, near the base. During the year and a half before presentation more nodules appeared.

The patient had from twelve to fifteen of these nodules on the flexor and extensor surfaces of the right index finger, two or three on the right middle finger, and two or three on the flexor surface of the left thumb.

There was no history of rheumatism, but the patient had had neuritis in the right arm each fall for two or three years. A biopsy performed by Dr. F. B. Mallory revealed chronic inflammation with a reaction to what appeared to be necrotic collagen. There was no evidence of tumor. The Wassermann test and blood smears were negative, and the urine normal.

DISCUSSION

DR. J. L. GRUND: The process is markedly like the skin condition occasionally accompanying chronic arthritis described recently by Weidman. I suggest that that would probably be the best diagnosis. The patient did not have a history of chronic arthritis, but I understand that histologic examination revealed a rheumatic nodule. Hygromata are lymph tumors.

DR. B. APPEL: I spoke to Dr. Mallory about this the other day and he looked up the slide and went over it. As soon as he put it on the microscope and glanced at it, he said, "Oh yes, that is the rheumatic nodule," and went into a little more detail; he explained that it looked like a rheumatic nodule, but clinically was not one. We are going to have some more sections made.

BLASTOMYCOSIS OF THE NECK (?); PSORIASIS. Presented by DR. E. W. KARCHER.

C. L., a housewife, aged 65, presented a condition of six months' duration which "started as a pimple or a boil; she had others on the neck with many small pimples on the body." These all disappeared except the lesions on the left cheek, which continued to grow larger. There was some itching around the border. Running parallel to the inferior maxillary bone about 1 inch in front of the angle

of the jaw, there was a pinkish, crusted lesion, rather nodular and with an uneven top, with several areas in which a pinhead-sized drop of pus was expressed. No regional adenitis was observed. The scalp was full of dry, scaling crusts with quite some elevation. There were two scaly lesions behind the left ear. The body and extremities were covered with discrete and confluent scaly papules with excoriations. There was marked enlargement of the thyroid.

DISCUSSION

DR. E. L. OLIVER: I think that Dr. Rockwood recently saw some blastomyces; there were very few good specimens. If we can get some specimens later, we can be more sure. I think that it is blastomycosis, and, of course, psoriasis also.

EPITHELIOMA; LUPUS ERYTHEMATOSUS. Presented by DR. E. L. OLIVER.

D. S., a letter carrier, aged 44, presented dry, crusted lesions at the inner canthus of both eyes. There was some scarring. A lesion on the lip was of six months' duration.

Examination of the throat revealed small embedded tonsils; no pus could be expressed. Examination of the mouth showed marked alveolar retraction about all the remaining teeth and a root fragment in the lower right incisor region. In a consultation at the Tumor Clinic, a precancerous condition was found. Radium therapy was advised, and x-rays were given to the lip. Areas near the inner canthus of both eyes showed a definite pearly border.

DISCUSSION

DR. OLIVER: The diagnosis of epithelioma of the lip with lupus erythematosus of the nose was not mine. It was made previously by some one else. I felt that the lesions on the eyes were both lupus and epithelioma. You can see definite raised pearly borders which are characteristic of the type which cicatrizes itself in the center as it spreads at the borders. I believe that the lesion on the lip is similar. It is now being treated with radium.

DR. GARFIELD: Has the patient had treatment of the nose?

DR. OLIVER: No, not as far as I know.

DR. GARFIELD: I thought I could make out telangiectases there, and I thought the patient had received radium therapy.

DR. OLIVER: I think he said that he had had no treatment at all.

A CASE FOR DIAGNOSIS. Presented by DR. E. M. ROCKWOOD.

M. C., an Italian girl, single, aged 18 years, a factory worker, presented areas of discoloration of the skin (purpuric spots) of nine months' duration.

She gave a history of having received tetanus antitoxin in May; four days later pain and infection developed which extended to the axilla. There was considerable local swelling and enlargement of the axillary glands and she was quite sick for four days, in bed for two weeks and out of work for one month. Shortly after returning to work, she began to complain of itching and discolorations over the chest. For eight months she complained of these hemorrhagic areas over the face, chest and arms. A month before presentation she stopped working because of tiredness and nervousness. Since the onset of her present illness her periods had been irregular and had lasted seven or eight days. She also gave a history of having been nervous always, and of having frequent sore throats up to three years before. A gland (tuberculous) was removed at the age of 12. She had always been constipated. She stated that she was happy and contented at home. Family history was unimportant.

The patient was apprehensive and uncooperative. Physical examination revealed superficial hemorrhagic areas over the face and chest. Blood pressure was 140

systolic and 90 diastolic; the heart and chest were normal; there was generalized tenderness in the abdomen, with spasm; reflexes were hyperactive. The blood count was normal. The bleeding time was 1-3 minus, the clotting time 7 minus and clot retraction normal. The stool and urine were normal. Surgical examination yielded negative results, as did roentgen examination of the heart and lungs.

DISCUSSION

DR. TOWLE: The eruption itself is evidently purpuric. Its distribution is most bizarre. Its restriction to the chest is exceedingly curious. The patient's story apparently varied with the inquisitor. When I said that there is nothing on the arms, she immediately replied that there had been, whereas she told Dr. Oliver that there never had been. The question of factitious eruption inevitably arises. I do not know of anything that would cause a purpuric eruption of such extent, lasting so long. I feel that there is something "phoney" about it. I wish that someone would enlighten us as to the neurologic aspect of this case.

DR. ROCKWOOD: That occurred to some of us. When faced with the question, she remarked that perhaps she did do a little herself in her sleep.

DR. TOWLE: It is possible that she was honest about it in giving the history. I have become rather charitable. When they say they did not cause it, they mean that they do not know that they caused it. They are functionally capable of doing things, but mentally they have a dissociation; their mental faculties are entirely cut off, and during that period of amnesia, they are influenced by a previous suggestion — perhaps, that of people who have done it. I remember in 1904 we had a series of those cases here; some of them were extraordinary. The patients were all hysterical. Their cases were all reported. They all had this same history of suggestion: not wanting to go to school, avoiding unpleasant duties at home — always some subjective suggestion, and then the subsequent condition. They are mighty interesting cases and almost impossible to detect. That still leaves us in the air as to how this woman did it.

DR. SWARTZ: I questioned the patient. She said that she was ill about nine months before, that she suffered with constipation for a good many years, that the doctor gave her some pills for the constipation, that two weeks after she first took the pills the eruption was noticed, but that she had continued taking them for nine months. I wondered if we might consider the question of a phenolphthalein eruption. Some of the lesions and the pigmentation resembled that.

DR. TOWLE: How would you explain this distribution in a phenolphthalein eruption?

DR. SWARTZ: I cannot explain it.

DR. R. JACOBY: I think that she pinches herself. I had her reach around to show me where the lesion was and asked her to feel of it; her finger impressions fitted identically the area on the back, just as though she had taken up a pinch and had brought the blood to the surface. If this were a purpuric eruption, would we not expect to find some abnormality in the blood picture?

DR. MCCARTHY: Yes, in most cases, but we have quite a few instances of purpura in low grade focal infections, and often we have it come from very slight trauma, but I have never seen this type of purpura. I agree with Dr. Towle that it indicates a factitia. I have never seen such an unusual distribution; it does not conform to the focal type.

NAEVUS; SCABIES. Presented by DR. E. M. ROCKWOOD.

D. H., a housekeeper, aged 24, white, single, American, gave a history of recurring ulcerations of nevus and generalized itching of two months' duration. She was treated at the hospital for a similar condition eight years before. She

had normal health up to about two months before presentation, at which time she began to itch, particularly at night. The old scarred areas of the nevus itched and as a result of scratching, began to ooze serum. Areas about the buttocks became so tender that she was constantly in considerable discomfort. Because of itching and the increasing discomfort from oozing areas of the nevus, she came to the outpatient department.

Since infancy she had had various nevi which had broken down and formed ulcers. At the age of 14 she was in the Boston Children's Hospital for several weeks. In 1922, she was treated for six weeks at the Massachusetts General Hospital, at which time there was extensive ulceration of the left leg. She was seen in the outpatient department several times following her discharge. She received two months of lamp treatment and had not been seen since until her present admission.

Physical examination revealed a nevus extending irregularly over the lumbar portions of the back, around into the lower axilla and flank, and down in front of the left thigh to the knee. The greater portion of the nevus was replaced by scars. Various areas showed crusting and oozing. Scabies burrows were seen on the wrists. Examination otherwise gave negative results.

DISCUSSION

DR. GARFIELD: She told me that she had never had any open ulcers there. Pimples developed in the nevus and then went on to atrophy; she never had any open sores.

DR. ROCKWOOD: She had open ulcers there.

DR. E. L. OLIVER: She told me that she never had any nevus there.

DR. TOWLE: She told me the same story.

DR. J. L. GRUND: She told me that the whole area was ulcerated.

DR. OLIVER: I think that the story is vague.

DR. TOWLE: I wonder if that case is not surgical rather than dermatologic. She gave a rather curious story about the left leg. The foot was cold, the thigh was traversed with tortuous veins and there was a swelling of the leg. I could not determine whether the leg was lengthened; it may have been her position. Her back had these hemangiomatous lesions. I wondered whether they were congenital. There is a congenital hemangioma, very often accompanied by this condition of the veins. I am wondering if there is some deeper disturbance there to account for all this.

DR. GARFIELD: Did she also have some lesions of scabies on the wrist?

DR. ROCKWOOD: I think that she did.

SECONDARY SYPHILIS; VARIOLA; MALIGNANT SYPHILIDS. Presented by DR. E. W. KARCHER.

S. P., a colored man, aged 45, had a sore on the penis for two months, which he had treated with medicine from a drug store. An eruption came out, first on his face and forehead. He had no pains, sore throat or alopecia.

Examination showed marked phimosis with inguinal glands, a malignant type of rash with some crusting lesions, half the size of a dime, and a macular eruption mixed with a papular eruption. The patient said that he felt sick.

DISCUSSION

DR. E. L. OLIVER: This evidently was a malignant type of secondary eruption. The primary marks on the penis were markedly indurated and there was a painless gland in the groin. I suggest the variola type of syphilis, but a careful examination might rule that out. Incidentally he had no vaccination mark that I could see. During a smallpox epidemic he might be shunted off to Gallups Island. He said that he had had no new exposure for a year, which I did not believe.

SYPHILIS; CARCINOMA. Presented by DR. E. W. KARCHER.

J. S., a white man, aged 55, a metal polisher, presented a condition on his tongue of three or four months' duration which he complained, "burned severely and was getting worse." He gave a history of having had a penile chancre thirty-six years before, and bubo twenty years before. The lesion was burned. He had no treatment and had no recollection of a rash. He has not smoked for two years, but before that he smoked a pipe a great deal.

Examination revealed a scar in the left groin. The testicle was normal. The skin was dry and scaly. The pupils reacted to dark and light. The heart was normal; the liver and spleen were not palpable. The knee-jerk reflex was normal. The voice was hoarse. The tongue could be protruded to its full extent; the front half showed smooth atrophy. There was smoothness and redness at the tip on the left side, extending from the dorsum under side; an indurated granular lesion, the size of a dime, was present on the dorsum. About 1 inch behind the tip and left of the midline was a raised indurated white-topped nodule, the size of a pea, with a rounded border. Extending backward from the lesion was a less elevated, superficial ulcerated area. In both axillary regions there were non-tender swellings. The tongue was tender to the touch. A roentgenogram of the chest was entirely negative. Dr. McCarthy stated that the patient was at the Boston City Hospital where he received about eight doses of arsphenamine, the last three weeks before presentation. The Wassermann reaction was positive. The lesion was getting worse.

DISCUSSION

DR. E. L. OLIVER: This man came in today for the first time, but I understand that he has been at the City Hospital. I think that it is cancer of the tongue on a syphilitic base.

DR. MCCARTHY: This patient came to the outpatient department of the City Hospital probably about six weeks before presentation. He showed this condition of the tongue, on which we made a provisional diagnosis of a malignant condition. A Wassermann test was positive. We gave the patient several doses of arsphenamine; there was a definite improvement for a while, but the improvement stopped and we felt that the condition was malignant. I happened to go to the patient's room one day intending to do a biopsy on the tongue, but when he learned what I was going to do he escaped.

SCLERODERMA OR MORPHEA. Presented by DR. E. L. OLIVER.

P. R., a white woman, aged 51, presented a condition of two years' duration which began on the abdomen with purplish-brown spots which slowly spread upward.

Examination revealed reddish-brown pigmented areas scattered over the trunk, which was waxy white and firm; there was stiffness around the neck from contractions of these areas. There was pain in the hands which began six months before presentation, with stiffness and numbness. The basal metabolism rate was + 10. The patient had a pulse rate of 78 and weighed 70.3 Kg. The impression in the Metabolism Clinic was that no evidence of thyroid disturbance was present but that there was a possibility of slight hyperthyroidism. A second examination showed the basal metabolic rate to be —6—, the pulse rate 88 and the weight 70.2 Kg. This unusual case showed many vasomotor phenomena (angioneurotic edema, probably vasomotor rhinitis and scleroderma), with some relation between the skin condition and the sympathetic system. Tests of anaphylaxis showed that orris powder should be avoided.

DISCUSSION

DR. OLIVER: She had an extensive multiplicity of lesions of a striking color, suggestive of morphea, and an ivory whiteness. She also had a good deal of paresthesia; the hands went to sleep constantly, and feel rather stiff although

no definite scleroderma of the hands was visible. Dr. James White suggested that a ganglionectomy be done, as has been done at the Mayo Clinic and at several European clinics, in both France and Germany, with marked improvement of paresthesia of the hands, and apparently better motion. He thought that this operation might affect the neck and arms and hands, and as her eruption was largely confined to the neck, arms and hands, we thought that it might be advisable to try it. These operations on the sympathetic ganglions seem to help the circulation somewhat. I think that we should be careful about giving these rather benign cases to the surgeon.

DR. J. L. GRUND: They have had good results in Europe in early cases but in cases that have extended over a long time, they have obtained no effect whatever.

DR. DOWNING: About a year ago, I showed two cases in which there was a question of Raynaud's disease. Both involved definite situations, including the tips of the fingers, and both showed these water-like eczemas on the tips of the fingers. These were both diagnosed as Raynaud's disease. In one of those cases, I found a short time ago, I found definite scleroderma on both hands, and in one instance half way up the forearm.

A CASE FOR DIAGNOSIS. Presented by DR. SWARTZ.

A girl, aged 12 years, presented congenital deformities of the ectoderma. She had no hair on the scalp, eyebrows, or any other region. Three other children in the family had the same condition. The fingernails, the first affected, became involved at 6 or 7 years of age, and at 12 years the toenails began to show definite brittleness and destruction and loss of the nails, some of which were rather painful to touch. She presented one very painful toenail.

DISCUSSION

DR. TOWLE: I hope that you will find out everything you can.

DR. GRUND: Three other members of the family had the same destruction of the nails and loss of the hair.

DR. SWARTZ: There were ten children in the family and seven died. Whether the others had it or not, I do not know. I did not inquire about any of the previous generation. It would be interesting to find out whether it occurred in the females or the males of the previous generations.

DR. BURNS: In addition to the points that have been mentioned, it seemed to me that the patient showed a definite keratosis of both solar and palmar surfaces. In connection with the destruction of the nails, I thought of keratosis palmaris. I asked her about her family and she told me that her mother and her grandfather had a similar condition of the soles and palms. Even though the keratosis of the palms and soles was not as prominent as the destruction of the nails, it seemed to me to be fairly marked and it might not be amiss to consider the diagnosis of keratosis palmar totalis in this case.

A CASE FOR DIAGNOSIS. Presented by DR. SWARTZ.

D. G., a Jewish-American stockbroker, aged 41, entered the Beth Israel Hospital complaining of draining subcutaneous abscesses of seventeen years' duration. His family and marital histories were essentially unimportant. His past history was negative except for the fact that he had handled large quantities of raw wool in his youth. He had changed his occupation about two years before the onset of his present condition. There had been no known association with tuberculosis.

In 1913, the patient developed what appeared to be a boil on the back of the neck to the right of the midline. Surgical drainage was resorted to, following which, the lesion continued to drain for many months. About six months later, a similar condition occurred in the region of the right buttock and, about a year

later, the left buttock and the region between the shoulder blades became affected. In each instance the course was the same. The lesion was first manifested by a red hard lump which became very painful and was associated at times with a moderate elevation of the temperature (101 F.). In about a week the area showed fluctuation and required surgical intervention. Following incision, the lesions continued to drain for months or years, and finally healed leaving dense scars. In addition to the areas named, there had been similar lesions on the arms, chest and scrotum. For the past month he had noted an erythematous, moist, itching lesion on the scrotum and adjacent areas.

The lesions rarely drained without surgical intervention, over thirty abscesses having been incised. In 1923, Dr. Swartz treated him with ultraviolet radiation, but without results. In 1925, Dr. Robbins started roentgen treatments; since that time the patient had had about thirty exposures. At one time Dr. Medalia performed cultural studies and isolated both staphylococci and streptococci. Autogenous vaccines gave no results. During the past five years there had been no new lesions, but recently a typical abscess developed on the left central part of the back.

A physical examination gave negative results except for the skin which showed three types of skin lesions: 1. The approximating surfaces of the thighs, the inguinal regions, the scrotum and the suprapubic region were covered by a uniform, dark, erythematous, sharply demarcated lesion which showed no induration, scarring, scaling or vesiculation. 2. On the lateral aspects of the legs and thighs there were several flat-topped papular lesions varying from a pinhead to a quarter in size; they were erythematous, and covered with an adherent scale. 3. The lesions of which he complained were best seen on the back and neck. The youngest lesion present was represented by an area on the middle of the back just to the left of the midline. In this region there was a rounded elevation, violaceous and fluctuant, but neither hot nor tender. The back of the neck from the hair line to the shoulders was covered by deep funnel-shaped scars and subcutaneous nodules, some of which were fluctuant to touch and others of which were draining purulent material. The area between the shoulder blades was covered by a dense mass of scar tissue the surface of which was irregular, rough and pitted by funnel-shaped scars. There were several linear scars between this area and the neck. The skin over both buttocks was pigmented, violaceous, indurated and scarred. There were several subcutaneous pockets of pus, many of which were draining. The subcutaneous tissue over the buttocks was largely replaced by scar tissue. The skin in the suprapubic and inguinal regions showed several pinpoint holes, reaching down into the deeper tissues. There was a draining sinus in the left side of the scrotum. Scattered elsewhere over the inner aspects of the arms, the adjacent wall of the chest and the axillary regions, there were small scars of dense connective tissue.

Clinical laboratory examination showed the urine to be normal; no sugar was found at any time of the day. The differential blood count was normal. The white blood cells numbered 14,000. The red blood cells and hemoglobin were normal. The stool was normal. The results of blood chemistry, blood serology and the Wassermann, Kahn and Hinton tests were negative. Tissue taken from both old and young lesions showed no characteristic pathologic picture. Cultures of pus removed from the most recent abscess incubated at 37 C. (broth, Sabouraud's medium and agar) and at 20 C. (Sabouraud's medium) showed no growth after twenty-four hours' incubation. After seventy-two hours, the 37 degree cultures showed a few colonies of *Staphylococcus albus* and *Streptococcus viridans*. A direct smear revealed no organisms by either Ziehl-Neelsen's or Gram's method. Guinea-pig inoculation and incubation on special mediums for tuberculosis were negative. Blood cultures incubated at 37 and 20 C. were negative after five days. Roentgenographic examination of the lung field revealed nothing abnormal.

DISCUSSION

DR. MCCARTHY: I have a patient at the present time who has a similar condition. The man whom I have been treating had a 4 plus Wassermann reaction.

He was infected many years ago. Under antisyphilitic treatment the lesions have been markedly improved. I would suggest this as one more treatment in this case.

DR. J. L. GRUND: I believe that the case should be studied from the standpoint of tuberculosis, and that gold treatment perhaps should be carried out as a therapeutic experiment.

DR. BLAISDELL: This case has a striking resemblance to that of a young man who was treated here a number of months ago by Dr. Greenwood. Those of you who went to New York in December saw him there, practically cured after three or four years of therapy. That patient had these same characteristics, only to a much more marked extent than this man, and the most thorough investigation showed nothing except a pus infection, as in this case.

DR. OLIVER: How was he treated?

DR. BLAISDELL: It was purely surgical treatment of local abscesses and scalings.

DR. SWARTZ: The point that led me against a diagnosis of an ordinary pus infection was that the first lesion excised yielded no growth during the first twenty-four hours and then the growth of more marked staphylococci and streptococci. The scarring was not of the type ordinarily seen in a pus infection. Some of them are funnel shaped. I think that all these observations point to tuberculosis and that the pus abscess is a superimposed factor.

DR. DOWNING: I showed a case here a year ago with the same sort of lesions on the back. The man had had it for eleven years. Last spring Dr. Calvin Page, of the Harvard Medical School, began a series of cultures continuing since that time. At one time he found an organism resembling blastomycosis, but was unable to demonstrate it definitely. About three weeks ago he called me up and told me that he had found a pure culture of the tuberculosis bacilli. Whether this man also has a family history of tuberculosis I do not know. This has been very definitely proved to be tuberculosis. He had the same type of sinus infections as this man.

DR. BURNS: I have only one suggestion. A noninflammatory, multiple abscess arising in this chronic way, preceded by a few lesions, suggests the possibility of spora trifolia infection. I would like to make the suggestion that although cultures have been made on the staphylococci, they could be tried without incubation.

DR. SWARTZ: So far, I don't think we have enough cultures to rule it out.

HEMANGIOMATA TRAUMATICA. Presented by DR. DOWNING.

A man was presented who showed enormous multiple hemangiomas, variously scattered about the face and body.

DISCUSSION

DR. DOWNING: I had heard about this man and finally got him into the office because I was interested in hemangiomas. The history is that, when a little boy, he was hit in the middle of the back by a blow from a club with such force that he was thrown forward and became unconscious. Shortly afterward a grouped area of lesions and small varicose veins appeared on the area where he received the blow. Later in 1916 he was astraddle a roof, slipped and landed on his crotch; shortly after this a large swelling of the penis developed, which grew so rapidly that an operation was necessary. He was operated on at the Massachusetts General Hospital in 1917. Later, he received another blow above the right knee, and a similar condition—a swelling similar to a bunch of grapes—appeared. These were all reddish blue, an appearance typical of hemangio-endothelioma. Wherever the patient received the slight trauma, this condition developed. We have not made a biopsy. We are hoping to get a report of the operation that was done here in 1917, by Dr. Greenwood. Later I want to get a biopsy of the lesion on his right inner thigh; that is the most difficult one. The interest in this case is in the

definite relationship between the trauma and the formation of these nodular swellings, and whether there was a congenital condition of his blood vessels and the trauma was the exciting cause.

DR. B. APPEL: Could the condition be metastasized?

DR. DOWNING: It could be. Dr. Mallory showed a case that was shown here many years ago. It was very slow in growth. It developed within the blood vessels themselves. They broke off and scattered through other parts of the body.

DR. LEE: This man remarked that he bled profusely on slight injury. I wondered if there was any factor there.

DR. DOWNING: He also had frequent attacks of urticaria.

DR. LEE: He spoke of prolonged nosebleed.

DR. C. G. LANE: The two cases of hemangioma that I have seen have both shown marked ulceration. In one of them almost the whole length of the forearm was involved. The diagnosis was confirmed by biopsy. I imagine that there is a class of hemangioma which does not ulcerate. This patient is a laboring man, who is perhaps on his feet a good deal, and he shows absolutely no marks of varicosities of his legs which, with his tendency to have trauma, would seem natural.

DR. DOWNING: I reported the case of a war veteran, thrown from a truck through the explosion of a shell, in whom similar lesions on one side of his face, a large swelling in his neck, and spots on the shoulder developed. This condition was definitely demonstrated microscopically to be hemangioma endothelioma.

DR. MCCARTHY: From a pathologic standpoint, trauma exciting a new growth which is characterized by the production of blood vessels in the form of a tumor, without preexisting cellular rests, seems almost unbelievable until we actually meet the type of case presented here. Established that the second trauma gave rise to the extensive hemangiomatous process about the penis, the secondary relatively small lesions suggest bloodstream disturbance as a result of the trauma which caused one or more primary tumors.

It is difficult to determine whether they are malignant or benign hemangiomas. This is a suggestion that part of the picture is related to blood stream hemostatic processes and that the traumatic factor suggests the stimulation of embryonic rests as the primary factor in production of the tumor. This is an interesting type of pathologic process in which a blood vessel tumor is produced from normal tissue as a result of trauma.

DR. DOWNING: We have not made a microscopic examination yet. I will report at a later meeting what we have found.

CHICAGO DERMATOLOGICAL SOCIETY

February 15, University Hospital, Ann Arbor, Mich.

CLARK W. FINNERUD, M.D., *President*

A CASE FOR DIAGNOSIS. Presented by DR. UDO J. WILE.

L. M. P., a machinist, aged 33, during the year previous to presentation, had noted hyperpigmentation of the face beginning on the forehead and gradually spreading to involve the entire upper two thirds of the face. This pigmentation was dark brown and mottled. Just anterior to both ears and on the medial surfaces of the orbits, it was considerably accentuated and associated with a slight atrophy. There was also an associated papular element with slight tightly adherent scaling.

The patient's work had been entirely with oil and steel. He had taken a few liver tablets known as "Taurocol," but he had not used any other kind of medica-

tion. The tablets contained bile salts, cascara and phenolphthalein in unknown proportions.

DISCUSSION

Dr. Oliver S. Ormsby: I think that the pigmentation in all probability is not due to phenolphthalein, nor is it an industrial condition. I have had an opportunity to study a patient with pigment of the same character and in the same location, except that it occurred in distinct patches. There were oval patches on the temples and on the sides of the face over and below the lower maxilla. My patient's work necessitated the handling of pigment, which he was sure was producing the skin condition. This pigment consisted of one powder containing iron and nickel, and another containing chromium trioxide, sodium silicate and talc. The patient has been watched carefully, and, although during two months he has not come in contact with this powder, new lesions have developed. His blood is normal, and there is no demonstrable change in the glands of internal secretion. I believe that the condition is neither an industrial nor a drug pigmentation.

Dr. R. F. Barney: Some years ago a patient with hyperpigmentation was presented before this society by Dr. Ormsby and Dr. Mitchell (*Arch. Dermat. & Syph.* **10**:139 [July] 1923), and it was suggested by Dr. Wile that there might be a change in the suprarenals. The patient died, and at necropsy a lymphosarcoma was found in the abdominal cavity. The pigmentation had existed for more than four years.

Dr. Paul A. O'Leary: We have at the present time under observation, a farmer with pigmentation similar to this but somewhat more localized. Some years ago, after a prolonged period of observation, I made a diagnosis of Addison's disease in a patient with the same type of pigmentation, and at autopsy tuberculosis of the suprarenals was noted. I mention this to call attention to the fact that tuberculosis may present a pigmentary picture similar to the one that has been described in association with malignant invasion of the suprarenals.

Dr. Joseph Grindon: This man has worked with nickel and chromium steel. A detail man in my office recently examined a new coal tar preparation. I asked him if it contained phenolphthalein. He said it did, but that it was the white variety which never produces skin symptoms, which he said are due to the yellow or pink preparations. Does any one know anything about that?

Dr. Udo J. Wile: I am grateful for the discussion. I was eager to present this case, because in Chicago in December, we saw an absolutely parallel case. I am in accord with the view expressed by Dr. Ormsby and Dr. Barney, that, although there is a definite history of both men having to work with oil, nickel and chromium steel, and that this might on the face of it refer to their occupation, nevertheless, in these cases of pigmentation of vicarious type one so often is dealing with some obscure or occult malignant condition, or some definite change in the endocrines associated with a malignant condition or tuberculosis, as Dr. O'Leary brought out. This patient is sure that the pigmentation occurred before he took phenolphthalein in the form of "Taurocol." The man was presented for a diagnosis of his condition, and I think that the case is worthy of watching for the ultimate outcome.

Xanthoma Diabeticorum. Presented by Dr. Udo J. Wile.

J. D., a bank teller, aged 22, had noted symptoms of diabetes for eight months. About three months before presentation he first noted an eruption on the skin on the extensor surfaces of the arms. Since that time the eruption had spread to involve the trunk. The eruption was widely distributed, but showed a predilection for the elbows, knees and buttocks. It was made up of papules varying in size from that of a pinhead to that of a pea, which were firm, deeply seated, orange-yellow, and associated with a mild erythema.

The patient was started on a dietary treatment just previous to presentation. The blood showed a marked lipemia.

DISCUSSION

DR. UDO J. WILE: This is the form of xanthoma that is most amenable to dietetic treatment. The patient's blood fat is very high. You saw the specimen of the drawn blood that was milky and actually greasy. The patient has not been in the hospital long enough to enable us to make definite estimations of the blood fat, but this is being undertaken. He is in the department of medicine but was referred to us, and was presented to show how simple is the qualitative test for blood fat. If there is any material increase, the blood serum will be milky. When this occurs one may be sure the lipoid content is increased two or three times or more above normal.

EPITHELIOMA (INVOLVING THE EAR). Presented by DR. UDO J. WILE.

B. E. M., a painter, aged 65, first noted a small lesion just anterior to the upper portion of the ear, about seven years before presentation. Recently, this had been injured and since that time had grown rapidly.

Examination revealed a nodule in the skin just anterior to and above the ear, and extending backward and downward so that the adjacent portion of the ear was involved. There was some question as to whether the external canal was involved. The nodule was distinctly firm, and on pressure showed a somewhat translucent border.

Biopsy was reported to show basal cell carcinoma, although some of the cell groups certainly approached the squamous variety in size and in staining qualities; a slide was presented. The case was presented primarily for opinions as to the best method of treatment.

DISCUSSION

DR. H. E. MICHELSON: As dermatologists, I think that we should take a definite stand on biopsies in cancer of the skin. In our clinic we have made it a rule to make a biopsy in every case, and we have made no effort to diagnose the type clinically. These patients, who are treated properly, get a much better result than those who are empirically treated as patients with basal cell cancer, for example, when the condition really is a mixed or squamous cell cancer, with subsequent recurrence. This case demonstrates that very well, and I believe that the tumor should be destroyed, even though there will be scarring.

DR. H. R. FOERSTER: I am not entirely in agreement with Dr. Michelson. The lesion in this patient is of eleven years' duration and apparently of very slow growth. It has been diagnosed as basal cell epithelioma, and, although there is a possibility of its being a mixed type, I believe that electrodesiccation, followed by radium or roentgenotherapy, without surgical dissection, might be used successfully. The latter procedure, if undertaken, would need to be radical and might therefore be deferred.

I am not in accord with the suggestion that all epitheliomas be subjected to biopsy without an attempt being made to diagnose them clinically. Biopsy studies should be made, but they are not always practicable, and I think we should try to make a clinical diagnosis of the type of epithelioma and then, in doubtful cases, employ the biopsy as a check. If this procedure is followed in a large series of cases, it will become evident whether or not it is possible to make an accurate clinical diagnosis of the different types of epithelioma clinically.

ACTINOMYCOSIS PRIMARY IN THE TONGUE (NO OTHER LESIONS). Presented by DR. UDO J. WILE.

J. A. W., a farmer, aged 53, presented himself on Oct. 22, 1929, complaining of a growth on the tongue which he said he had first noticed about two weeks before presentation and which had been accompanied by some stinging and soreness. He had not received any treatment, and the Kahn reaction of the blood was negative.

Examination showed a large nodule the size of a bean, deeply seated on the right side of the tongue, and about 2 cm. back from the tip. The lesion was only moderately firm, practically painless, and just suggested a slightly cystic quality. No diagnosis was made, but excision was advised. The pathology department was able to demonstrate actinomycosis, and stated that this was the third case they had examined with the primary lesion on the tongue and no apparent lesions elsewhere. Since excision, the patient had been given large doses of potassium iodide by mouth and roentgenotherapy locally. A slide showing the ray fungus in the excised nodule was presented.

DISCUSSION

DR. H. E. MICHELSON: I think that this is a most extraordinary case. I do not know the experience of others who see a lot of actinomycosis, but I have never seen a primary nodule on the tongue before. I am very glad to have seen it.

DR. W. H. GUY: This man gives a history of chewing straw continuously, and he may have acquired a direct infection from grain in that way.

A CASE FOR DIAGNOSIS. Presented by DR. UDO J. WILE.

C. N., a laborer, aged 68, nine months before presentation had noticed small reddish papules about the wrists and legs. The condition spread, papules and vesicles occurring in groups all over the body. There was a high fever at the time of the attacks which were recurrent; the patient lost weight and weakened. He was treated with ointments and injections believed to be arsenic, but received no roentgenotherapy.

Examination revealed a more or less universal reticulated brown pigmentation. About the neck and over the arms and legs there were several purplish-red papules. There was a generalized lymphadenitis. The palms and soles showed hyperkeratoses. The finger-nails showed exfoliation. The hair was examined for arsenic, but none was found. The blood pressure was 120 systolic and 70 diastolic.

The patient was receiving colloidal baths, salicylic acid in petrolatum and potassium and sodium tartrate, one-half ounce (14.17 Gm.) daily.

The pathology department reported "active chronic dermatitis with an irregularly disposed melanoderma." The changes were compatible with a chronic arsenical dermatitis.

DISCUSSION

DR. JOSEPH GRINDON: In some places there was pigment atrophy with surrounding pigment hypertrophy and a ringed or marbled appearance. In some places the marks seemed to have been produced by scratching, much the sort of thing seen in "vagabond's disease." The keratodermia and lesions of the nail suggested arsenical origin, and the man had taken arsenic. There were some papules that he said had formerly itched, but the itching had ceased. There apparently are two or three conditions to be considered.

DR. PAUL A. O'LEARY: I believe that this patient has an arsenical pigmentation. We have been doing routine arsenic tests in cases of exfoliative dermatitis on the hair, nails, urine and in the tissue. In the arsenical erythrodermias that are exfoliating we have no difficulty in obtaining the arsenic from the scales and also from the hair. In those patients with arsenical pigmentation, arsenic is readily obtained from the hair.

DR. W. H. GUY: I am inclined to interpret this case as a hyperpigmentary eruption, and I think that it is nearly a counterpart of a case seen four years ago in which the lesions were caused from the administration of bismuth and arsenic. The lesions were primarily erythematous following the outlines of the superficial vascular network with residual pigment which has persisted to date. We felt that it was a mixed type of reaction rather than one definitely due to arsenic, and I wonder whether this patient received any bismuth.

DR. G. H. BELOTE: He has received no bismuth here. He gives a history of intravenous therapy before coming here, for some scaling skin eruption, but we

do not know what that eruption was. He came here from another hospital, and about the only thing he presented was the hyperpigmentation together with the patches over the leg.

DR. J. H. MITCHELL: Dr. Finnerud, Dr. Oliver and possibly Dr. Ormsby have seen two cases of the fixed exanthem type at the clinic. One of them is definitely due to the administration of arsenic and the other to bismuth. Recently, the one patient was given more bismuth, which resulted in a typical sharp reaction with pigment of this type.

DR. UDO J. WILE: I have not much to add except that the case was unusual on account of the reticulated form of pigmented atrophy. I am in accord with the views of Dr. Guy. Just why the man should develop the hyperpigmentation, is difficult to understand. We are at a loss to interpret the observations, and the patient was shown in the hope that someone could interpret them for us. My own view is entirely speculative. It seemed to me that the arsenic at least had something to do with the character of the lesions, although I do not think it would be proper to classify it as an arsenical dermatosis. We have made chemical studies of the hair, and no evidence of arsenic has been found.

RECKLINGHAUSEN'S DISEASE. Presented by DR. UDO J. WILE.

P. B., a laborer, aged 60, said that his condition had been present since early childhood and had never caused him trouble until five years before presentation, when he began having sharp shooting pains in the right leg. Since that time several operations had been done to relieve the pain, and as a result of nerve section, the patient had a marked foot drop. His intelligence quotient was obviously low, as is so common in this condition. Roentgenograms of the skull, pelvis and long bones showed no evidence of bone cysts, which are supposed to be present in a fair proportion of these cases.

Examination showed the typical tumors and pigment of Recklinghausen's disease. The patient had also recently developed an ulcer on the dorsum of the second toe, which was thought to be trophic. Slides were presented to show the difference in structure between the soft and the more firm types of nodules.

DISCUSSION

DR. G. H. BELOTE: An article was published recently in which attention was called to bone cysts in this condition. We have been making roentgenograms of the long bones and skulls of the patients we have seen, and to date I think that we have not found one that has shown the bone cysts which are supposed to be fairly common. I wonder whether this is the usual experience.

DR. JOSEPH GRINDON: I do not know about that, but I wish to call attention to the frequent occurrence of lateral curvature of the spine in Recklinghausen's disease as pointed out by Engman.

A CASE FOR DIAGNOSIS. Presented by DR. UDO J. WILE.

J. V., a schoolboy aged 12, stated that his trouble began about eight months before presentation, with an eruption on the legs, and swollen painful joints, particularly in the knees. Apparently the earliest lesions were pustules, as he said they discharged pus when they opened. He came to the hospital in August, 1929, about two months after the onset, and at that time was described as an undernourished, underdeveloped boy who presented a generalized eruption partly of a papulosquamous nature suggesting psoriasis, and partly of a crusted nature exuding a seropurulent discharge. The scalp was involved in the crusted process, and the nails were markedly thickened and deformed. The knees and right ankle were swollen and painful and presented contractural deformities.

Since August, the patient had remained under hospital care, and had been searched thoroughly for foci. Only septic tonsils were found, and these were removed. A search for gonococcus had been unsuccessful. Under treatment con-

sisting of baths, various ointments, ultraviolet light, high caloric diet, etc., the patient had gained 30 pounds (13.6 Kg.) in weight, looked much better and was now able to walk with crutches. The pain and tenderness had largely disappeared from the joints.

DISCUSSION

DR. OLIVER S. ORMSBY: I do not believe I have seen a patient with a symptom-complex just like this, but I have seen something similar. This patient does present a keratoderma simulating that produced by gonococcus, but that disorder can probably be ruled out. This calls to mind a condition we are now studying. We have had under observation for seven years, two sisters who have had what we class as pustular psoriasis. On some occasions they have typical patches of psoriasis generally distributed, including the scalp, which would be called psoriasis. At the same time, or at different times, they have pustules connected with it. Sometimes the patches begin as a definitely pustular eruption. We have studied the pustules, and they are not like the ones commonly seen in pyogenic infections but are more like those described in impetigo herpetiformis or dermatitis repens. In the last few weeks we have seen in one of the cases, large numbers of pustules identical with those of dermatitis repens which were sterile. We have made all the experiments we could in order to determine the nature of the pustules. Another interesting feature in these patients is recurrent attacks of elevation of temperature and generalized illness. During these attacks, they develop pustules in groups that terminate in psoriasiform lesions. There is on record another pair of cases which were studied abroad by Zumbusch, and which are apparently identical with ours. Another characteristic symptom in our two cases has been a marked pustular onychia with loss of the nails during each attack.

DR. H. L. KEIM: I saw this patient shortly after his admission to the hospital, and at that time he had an eruption that closely simulated the pustular eruption that I described some years ago. However, in that boy shown two years ago, a history of gonorrhea was obtainable, and I understand no such history can be obtained in this patient. I think that this case should not be included in the cases of keratodermia due to gonococcus, but I believe that it more likely belongs in the group which Dr. Ormsby described.

DR. PAUL A. O'LEARY: To me, this is a case of psoriatic arthropathy. Three types of these cases are seen in my patients: The first type is made up of cases in which psoriasis and arthritis are present in the same patient and apparently are not related. In the second type, the onset of the psoriasis is followed shortly by the appearance of a comparatively mild degree of arthritis. In these groups, treatment of the psoriasis invariably results in complete relief from the arthritis, which develops again, however, with the reappearance of the psoriasis. In the third type, psoriasis is related to a severe type of arthritis, particularly the periarticular type with destructive lesions. I believe that the case at hand belongs in this last group. The presence of a pustular element in the psoriasis is seen most frequently in this third group, and in these patients the routine treatment for the psoriasis influences the arthritis but little. The intensive use of nonspecific measures occasionally gives the patient symptomatic relief.

DR. JOSEPH GRINDON: I have noted the marked pustular onychia in cases called pustular psoriasis. I doubt whether any of the cases of rupioid psoriasis I have seen were true psoriasis. They have been of this type, beginning with minute pustules, as Dr. Ormsby described. In this case at first glance I thought of keratosis blennorrhagica, but the lesions seem less bulky than in that disorder. Why might not some other organism than the gonococcus produce similar lesions?

DR. R. F. BARNEY: In addition to the cutaneous infection, I think that this boy also has a definite heart disease. The impulse at the apex is definitely outside the nipple line; there is an irregularity, and the boy has cyanosis of the lips and fingertips as well as edema of the lower extremities.

DR. W. H. GUY: I was impressed by the things Dr. Barney mentioned, and in addition to that, an apparent anemia evinced by the lips and nails. I think that we are going far to classify this case as psoriasis. Possibly we are dealing with a definite entity; perhaps in this case a low grade blood infection or perhaps a visceral lesion is continuously dumping further infectious material or toxins into the system.

DR. F. E. SENEAR: I presented a patient at the annual meeting of the society two years ago, and he now shows a picture that fits in well with that described by Dr. Ormsby in the two sisters. That man shows definitely a grouped type of pustular eruption, and while he was at Cook County Hospital it had progressed to the dermatitis exfoliativa stage, with spontaneous involution on two occasions. We saw him about two months later when he showed a straight exfoliative dermatitis based on a chronic suppurative dermatitis. After Dr. Ormsby's description of his two cases, I feel that probably this is a distinct type of pustular arthropathic psoriasis.

DR. UDO J. WILE: This discussion is extremely valuable to us. We have had this boy in the hospital for about six months. I wish that all of you could have seen his condition as a few of you did. He now has the residuum of his trouble. He was, I think, the most miserable looking boy I ever saw. He was covered with a pustular eruption from head to foot, with a predominance of symptoms on the feet and head. The nail and joint symptoms made us feel that we were dealing with an unusual blennorrhagic keratosis. However, we have considered the possibility that it was a psoriasis arthropatica. In the history, the boy states that his father died with a similar eruption and with joint trouble. I do not know that this makes the diagnosis any simpler. The boy was so ill that on occasions we despaired of his life. He was absolutely crippled. Today he moves about fairly well, is in the care of the physiotherapy department, and he looks as if he might make some sort of recovery. We have abandoned the treatment for the past two weeks to see if new lesions would develop, and they have. He has more involvement today than he had a couple of weeks ago, which shows that we must keep him constantly under treatment.

I am extremely grateful for the discussion, and we shall be on the lookout for further cases of this kind.

LYMPHOSARCOMA. Presented by DR. UDO J. WILE.

N. T., a schoolboy, aged 16, stated that seven months before presentation he began to develop swellings in the left groin and skin, which were asymptomatic. The inguinal swelling was opened by the home physician, and a sinus remained, which discharged about a teaspoon of pus a day.

Examination revealed the glands to be of rubbery consistency, some matted, some discrete and varying in size from that of a pea to that of an olive. Biopsy revealed nothing of importance.

On his return to the hospital two months later, the process had extended, and biopsy revealed lymphosarcoma. He now had a generalized hard lymphadenopathy. Some of the glands were tender. He had pain in his arms, due to the pressure of these glands. He had severe epistaxes for four or five days, which responded finally to irradiation and transfusion. He had also been given erysipelas and prodigiosus toxins (Coley's). A slide was presented.

LYMPHOSARCOMA. Presented by DR. UDO J. WILE.

O. L., a laborer, aged 59, about four months before presentation had noticed pain in the lower part of the left leg. A month later he observed a swelling in the left inguinal region, which when first noted was the size of a hen's egg. He thought it was now from four to five times as large. Recently he had noticed a swelling of the entire leg, but no especial pain.

Examination showed a lesion the size of a hickory nut on the inner aspect of the lower part of the left leg, just above the ankle. It was purplish-red and fairly firm. The central portion was deeply pigmented. Arising for the most part from Hunter's canal was a rubber hard, purplish-blue tumor, the size of a grapefruit, firmly fixed and extending up the pelvic girdle. The pathologic report showed "somewhat atrophic skin overlying an atypical hyaline fibrosis, which becomes less and less cellular as one goes more deeply. Might be fibroma or fibrosarcoma, but there is nothing on which a diagnosis of malignancy could be based."

A slide was shown. A later biopsy of the inguinal mass showed lymphosarcoma.

SARCOMATOSIS. Presented by DR. UDO J. WILE:

G. B., an iron worker, aged 40, stated that three years before presentation he had injured his right forearm, and since that time had noted a tumescence, which he thought was attached to the bone. Three months ago he noted three small nodules, and since that time many more appeared on the wrist, forearm and upper arm.

Examination showed a marked swelling of the forearm, particularly on the ulnar side, and at the summit of this, three nodules which had ulcerated. In addition, the wrist, the forearm and upper part of the arm showed many nodules varying in size from that of a pea to that of a cherry, which were deeply seated, hard and showed no tendency to ulceration. There was also no evidence of inflammatory reaction. The epitrochlear and axillary glands on this side were much enlarged and very hard. A roentgenogram of the forearm showed a soft tissue swelling with some changes in the underlying ulna (roughening, cortical thickening and partial obliteration of the medullary canal) which the roentgen department considered secondary to sarcoma in the soft tissues rather than primary sarcoma of the bone. The lung fields showed no metastases.

A smear was presented which was diagnosed as metastatic sarcoma; the cell type was difficult to determine, but was probably spindle. The patient had been treated by roentgen rays and erysipelas and prodigiosus toxins (Coley's).

DISCUSSION

DR. H. E. MICHELSON: I should like to ask about the use of the term sarcomatosis in the last case in this group, because if it implies the Spiegler-Fendt type which is benign, I could not agree with the diagnosis, for I think that the condition in this case is definitely malignant.

DR. H. R. FOERSTER: I believe it worth while to comment on the marked variation in the clinical manifestations of these three cases which histologically show one cell type of sarcoma. The fibroma-like appearance of the lesion of the ankle in the second case fits in with the observation that histologically it does not appear to be very malignant.

DR. F. E. SENEAR: Dr. Foerster touched on an interesting point in the second case, that of the patient with the lesion on the leg. In clinical appearance it resembles closely the dermatofibrosarcoma group, with the comparatively low grade of malignancy and the variation in amount of sarcomatous and fibrous material on the same slide. This corresponds well with the changes shown in that group.

DR. W. H. GUY: I was particularly interested in the last case in the group, that of the man with the lesion on the arm following an injury, and with the development of the next lesion lower on his wrist, which I suppose raised in Dr. Grindon's mind, the possibility of a spread by the lymph channels. A roentgenogram of the chest is suggested, for if he has sarcomatosis it would probably show in the chest.

DR. G. H. BELOTE: A roentgenogram of the chest has been made, but it shows no involvement.

DR. R. F. BARNEY: I think that it would be interesting to take a biopsy of the lymphangitis of the leg in an effort to see whether there are any sarcoma cells in the lymph channels. The leg is very hard and boardlike to palpation.

DR. UDO J. WILE: It appeared to us, as was suggested in the discussion, that the striking feature of these three cases is the extraordinary difference in the apparent malignancy in the group, two of which are identical clinically, and one of which is clinically dissimilar. Dr. Michelson suggested the extreme malignancy of the lesion on the arm. As a matter of fact, this is the least malignant clinically. It has undergone no change since we saw him, except in the ulcerative process, which I think is exceptional. To what extent irradiation has caused this, I am not prepared to say, but they were growing so rapidly and were so hard that they burst through the skin and became infected. There is no suggestion at this time of a hematogenous dissemination. The man is well. On the other hand, there is the boy with lesions in the groin, with adenopathy, who may be said to be desperately ill. There is a distinct hemorrhagic tendency. He bleeds and has to be given transfusions. Two or three weeks ago he was walking around the ward, having been given a transfusion and irradiation therapy. He began to bleed again, and I think the case will soon terminate fatally. I feel the same about the man with the bluish-black swelling in the arm. I am not sure about the question Dr. Barney brought up. The boardlike edema may well be associated with stasis on account of the blocking of the lymphatics by the enormous growth. In the other case, I took the growth on the arm to be of the spindle cell sarcoma type until biopsy showed it to be a round cell type. This is an illustration of Dr. Michelson's point that we cannot be clinically sure about a microscopic diagnosis. I do not know how we happened to have all these cases at one time, but I am very glad to have an opportunity to present them. I wish we might have some therapeutic suggestions for them.

MELANOMA. Presented by DR. UDO J. WILE.

F. P., a farmer, aged 64, said he had first noted a mole over the left scapula five or six years before presentation. About one year ago this began to grow rather rapidly, and during the past three months he had noticed a large lump in the left axilla and several other lesions appearing in the skin of the neck and trunk. He had also noted some dimness of vision, had recently lost 30 pounds (13.6 Kg.) of weight, and felt weak.

Examination showed a fairly well preserved man, who was naturally of dark complexion, but in addition to this, the skin over the upper trunk showed a slightly bluish or slate color. Over the left scapula there was a small orange-sized, lobulated, bluish-black tumor. The left axilla contained a second orange-sized tumor, and scattered in the skin of the face, neck, trunk and extremities were many tumors varying in size from that of a pea to that of a cherry. These were all deeply seated, firm, and distinctly bluish-black. The ocular fundi showed only neuroretinitis and endarteritis. The patient's blood and spinal fluid were both positive for the Kahn test.

The pathologic report was melanotic sarcoma, and nothing unusual was found in the bluish colored skin to account for the color.

A slide was presented.

MELANOMA? Presented by DR. UDO J. WILE.

C. R., a woman, aged 34, with no occupation, was referred from the Bone and Joint Department, where she was being treated for tuberculosis of the hip. She had also had tuberculosis of the spine and pulmonary tuberculosis. Three years before presentation a lesion developed on the dorsum of the little finger, and she believed that another developed coincidently on the forearm. Both assumed a bluish-black color and grew slowly.

Examination revealed two lesions, one on the right middle finger and the other on the lateral surface of the arm below the elbow. Both were bluish-black, the size of a glass pinhead, and shotty to the touch. The glands showed no evidence of metastases.

DISCUSSION

DR. H. E. MICHELSON: I think that we will accept malignant melanoma as the diagnosis in the first of these cases. I look on the lesion in the second patient as a benign mole, and I would not hesitate to remove it by excision.

DR. PAUL A. O'LEARY: I disagree with Dr. Michelson, and I believe that it is inadvisable to excise the lesion. If I am not mistaken, the lesion on the finger is of only three months' duration, and the recent appearance of the lesion on the arm suggests that metastasis has already taken place.

DR. W. H. GUY: I think that if the lesion had been excised early the patient probably would not have any at the present time. The question arises as to whether or not we are dealing with a definite melanoma. In the removal, it would be simple to go wide of the lesion, and if it is not malignant at present, it is perhaps true that we could save the possibility of it becoming so in the future.

DR. OLIVER S. ORMSBY: The same question is up with us constantly, and I think there is nothing that comes to my office that I feel more responsibility in passing on than pigmented lesions. We see some patients each year with malignant transformation of a mole. The greater portion of these have been removed surgically, after which general dissemination occurs. In one early case of a mole in one brow, I advised no treatment, but later the patient had it removed surgically, and within fifteen months, death occurred from general nevocarcinomatosis. I believe that if it had been left alone, this calamity could have been avoided. I think that quite a number of these cases are potentially malignant, but on the other hand, some are benign. I have watched several of them and have seen nothing develop. In this case I would advise leaving the lesion on the arm alone. The patient had a definite tendency toward the development of pigment. No matter how widely such a growth is excised, it may be disturbed and increased.

I have nothing to add to the treatment except that I have seen lesions as large as the one on the shoulder kept in good condition for years under radium therapy.

DR. G. H. BELOTE: This woman was sent to us from another department of the hospital with the question whether or not to remove the growth. There has been some argument between members of the staff, and today we wished to see what the feeling of the general group would be. We seem to be no nearer a conclusion than we were before, but I think we will leave it alone.

DR. H. E. MICHELSON: I cannot understand why a wide excision would stir up this process, and I do not see why the other lesion should be interpreted as metastases. I think that the patient has multiple moles, and she states that the lesion on her forearm has been present three years and has not grown. I would want the patient to know the prognosis and would want the lesion widely and deeply excised and sectioned. If she is developing malignancy in a mole, the prognosis is lethal any way, and I do not consider a wide excision dangerous here.

HODGKIN'S DISEASE (WITH PRURIGO-LIKE NODULES). Presented by DR. UDO J. WILE.

E. G., housewife, aged 24, for three or four years previous to presentation had observed swelling in the lymphoglandular system, associated with marked pruritus, which increased gradually so as at present to keep her awake. For this she received Alpine light, roentgenotherapy generally and locally, and twenty-five injections of iron cacodylate three years ago.

Examination showed a rather undernourished woman with firm glands on the left side of the body, most marked in the neck, and varying in size from that of a cherry to that of a walnut. The glands on the right side were enlarged to a

much less degree. The spleen was just palpable. In addition, there was a generalized pigmentation most marked about the neck, trunk and flexures, and numerous excoriated points and lines.

A biopsy showed advanced Hodgkin's disease. The blood showed hemoglobin, 56 per cent; red blood cells, 5,060,000; white blood cells, 23,000, and polymorphonuclears, 91 per cent.

A slide was shown.

DISCUSSION

DR. F. E. SENEAR: I was much interested in this case because we have under observation at this time a person who shows much the same picture. We saw the patient in the medical service, where he had a typical advanced Hodgkin's disease. We made a diagnosis of one of the toxic eruptions that occur in association with Hodgkin's disease. In addition to the prurigo-like lesions present in this case, that patient had some nodules that were like the lesions of folliclis. Later when we examined the lesions microscopically, we found typical Hodgkin's disease of the skin, although clinically it belonged in the toxic group. The patient also had taken a great deal of arsenic and presented punctate keratoderma of the palms and soles and quite a large number of verrucous lesions. In addition, the axilla showed a black verrucous dermatitis, and I noticed in this case the patient had striate pigmentation. We were unable to determine in our case what the pigmentation was due to, but we excised some of the tissue in the warty area and found a simple verrucous change with no suggestion of Hodgkin's disease.

DR. W. H. GUY: A very interesting piece of work is being done by Dr. Wallhauser of Pittsburgh. He is removing glands and making a tissue extract by a method with which I am not familiar. He has used this as injections, and some patients have remained free from lesions for over a year. On the basis of this rapid dissolution of lesions, Wallhauser is inclined to believe that some of these cases are neoplastic, others are of infectious origin, and the infectious ones are those that respond to this method of treatment.

DR. CLARK W. FINNERUD: This case interested me particularly because I do not know of any cases having been reported previously in which the true Hodgkin's type of pathologic changes has been demonstrated in this so-called nonspecific type of pruriginous eruption.

DR. UDO J. WILE: We are indebted to Dr. Brown of the department of internal medicine for the privilege of showing this patient. She is under his care for the treatment of Hodgkin's disease. I think much of the pigmentation could be explained on the generous irradiation she has had. Some of it can be explained on the basis of the arsenic, but I think that we are justified in saying that even without irradiation these patients will show pigmentation due to the disease itself.

With regard to the specific or nonspecific character of the lesions of the skin in Hodgkin's disease, I am sure Dr. Ormsby will agree with me that this refers to the clinical differences rather than to the histology. The lesions in some cases are clinically analogous to the lesions in the glands, whereas others do not resemble the glandular changes. It is interesting in Dr. Senear's case and in this one, that they should not carry this analogy into the histology. In this case, a nonspecific eruption proved pathologically to be a typical cutaneous lymphadenosis.

KERION OF SCALP: ERYTHEMA NODOSUM. Presented by DR. UDO J. WILE.

E. F., a schoolgirl, aged 11, developed an eruption on her scalp four weeks before presentation. At this time she presented several granulomatous looking nodules that were deeply seated, only moderately tender, and the hairs from which contained many mycelia. In addition, a second eruption had appeared more recently over the anterior surfaces of the lower part of the legs. This she said followed being kicked by her sister. This eruption consisted of brightly erythematous nodules varying in size from that of a pea to that of a cherry, some of which

had taken on an annular configuration, and all of which were tender. There was no tendency toward ulceration.

DISCUSSION

DR. OLIVER S. ORMSBY: In going over the literature some time ago on trichophytids, we found the record of two patients with erythema nodosum occurring with kerion, which were considered trichophytids. This case may be another example of this disorder.

DR. CLARK W. FINNERUD: My impression was that of Dr. Ormsby's I think that the condition is a trichophytid along with kerion.

SYPHILIS (SECONDARY, CORYMBOSE, LENTICULAR). Presented by DR. UDO J. WILE.

G. T., a schoolgirl, aged 16, had no history of a primary lesion. About six weeks before presentation, she first noted an eruption on the face, and since then this had spread to involve the entire body.

The case was of interest in that it presented some of the unusual types of secondary eruption.

SYPHILIS (LATE WITH SECONDARY AND TERTIARY CHARACTERISTICS). Presented by DR. UDO J. WILE.

G. W., housewife, aged 32, was first seen in the University Hospital in 1923 with a stricture of the rectum, and while a diagnosis of syphilis was considered, it seemed ruled out by repeatedly negative serologic tests and by inconclusive pathologic reports. A colostomy was done, and the rectum resected. The patient returned in 1927 with a fistula in ano, and a destructive lesion of the vulva, which was considered tuberculous, although it was not proved. The patient's serologic test was again negative. About one month before presentation, the patient returned presenting for the first time lesions of the skin other than a mild rosacea and an iritis.

The lesions at this time varied in size from that of a glass pinhead to that of a quarter. They were generally distributed papules and plaques, rather deeply seated, brownish-blue and firm. Most of them were covered by a scale, and they showed no tendency toward ulceration. The labia showed a few small pea-sized eroded papules. The Kahn reaction of the blood at this time was four plus, and the section from the lesion of the skin was distinctly gumma.

A slide was presented.

DISCUSSION

DR. LOREN SHAFER: I have had this patient under observation at various intervals for two years and was interested in seeing her today. The trouble began with a rectal stricture for which a colostomy was performed. A pelvic mass has persisted with vulvar ulcers which have been very painful, and I agreed with the diagnosis that was made here originally, that of tuberculosis. I gave the patient some gold sodium thiosulphate, and the vulvar lesions practically disappeared. I did not see her then for about a year, but last fall she returned with more vulvar lesions. She did not respond to gold therapy, and then quite a toxic condition developed, consisting of fever, abdominal pain, nausea and vomiting and weakness. I saw only a few of these lesions and thought that they were toxic in origin. It is also true that her husband had some sort of disorder about six months ago, which might have been a primary lesion and for which he received intravenous and intramascular injections. It is a question, I think, whether syphilis accounts for the whole picture, or whether she had the two conditions and the syphilis was of the more recent origin.

DR. W. H. GUY: I was inclined to accept the diagnosis, but the extreme emaciation of the woman and her apparent disability led me to think that it might be well to treat her for tuberculosis instead of syphilis.

DR. PAUL A. O'LEARY: I agree with the diagnosis of a precocious syphilid, but in my experience the majority of benign strictures of the rectum are not syphilitic. For several years it was our custom to interpret benign rectal strictures as of syphilitic origin, but a comprehensive review by Dr. Buie showed that less than 10 per cent of such lesions could be attributed to syphilis.

DR. JOSEPH GRINDON: Our experience in St. Louis has been quite the contrary. The great majority of nonmalignant strictures of the rectum have been syphilitic. I should add that the material observed consisted largely of Negroes. In this case, I thought the lesion on the upper part of the right arm was a typical nodular syphilis of the exfoliating type, although in most of the other areas there was only a coppery pigmentation left.

DR. H. L. KEIM: I should like to know whether other serologic tests have been done and if they were negative.

DR. G. H. BELOTE: When the patient was first seen in 1923 and again in 1927, the serologic test was negative. The Kahn test is now positive.

DR. H. L. KEIM: I have a feeling that if this is entirely tuberculous we may have an overwhelming infection. I would suggest that a complement-fixation test be done.

DR. H. R. FOERSTER: I should like to ask Dr. Wile if he considers the group of nodules on the forehead, producing the so-called corona veneris, of diagnostic value in support of a diagnosis of syphilis.

DR. R. F. BARNEY: Has a roentgenogram of the lungs been made and the sputum examined? I think that if this was an overwhelming tuberculosis, we would find evidence in the lungs and sputum. The loss in weight would be compatible with syphilis, for it occurs in severe secondary and tertiary stages.

DR. W. H. GUY: I think that this patient is the type that does not respond to the usual types of specific therapy, and that building her up physically would aid her response to specific medication.

DR. UDO J. WILE: We have followed this patient for a long time, and Dr. Belote deserves credit for checking up a lot of her past history that I did not know about. I saw her first two years ago in consultation with the genito-urinary department when she had a very painful condition of the vulva that bore no relation to syphilis. I think the biopsy made at that time, while not very definite, supported the hypothesis of an infectious granuloma. She had at that time, a negative Wassermann reaction, and was in fair physical condition. She presents now, I think, a little different sort of picture. While everyone seems to agree on the clinical diagnosis of syphilis, I should like to direct attention to the fact that if such is the case, it is a most unusual type of syphilis. It has some of the characteristics of a late and some of an early syphilid. The lack of grouping and the lack of any destructive process are against the late type of lesion, and coalescence of many of the larger lesions is certainly not characteristic of an early type of disease.

I do not believe that the lesions on the forehead correspond with the so-called corona veneris, as Dr. Foerster has suggested. We are going to institute treatment for syphilis, but I cannot quite get over the idea that there is an unusual feature about this eruption that may make it difficult from a therapeutic standpoint. I am willing to accept the diagnosis of syphilis, but in my opinion, the lesion is not an ordinary syphiloderm.

PEMPHIGUS VEGETANS. Presented by DR. UDO J. WILE.

B. M. S., a housewife, aged 50, said her difficulty began in December, 1928, with influenza and a streptococcic sore throat. The sore throat did not clear up, and her mouth also remained sore. Shortly after, an eruption appeared around the anus and then spread to the vulva.

This patient was first seen in Dr. Wile's department on Sept. 13, 1929, and at that time presented crusted lesions on the lips, distinct erosions on the buccal

mucous membranes and pharynx, and a vegetative growth involving the genitalia and perianal regions. The patient remained under their care from September 26 to November 21, during which time she received the Davis treatment, baths, roentgenotherapy, blood transfusions and several injections of bacteriophage. At this time the blisters in the mouth had entirely cleared up, and the genital vegetative lesions had improved. The patient went home and remained about six weeks, returning on Jan. 3, 1930. At this time the condition of her mouth was about the same as at the previous admission, and in addition to the genitalia, the axillae and breasts were now involved in vegetative masses. Treatment with tryparsamide, according to Grindon, had been given during the past four weeks with little change. Her blood was examined by Dr. Pels and reported positive phytopharmacologically for pemphigus.

DISCUSSION

DR. MAX WIEN: This case is similar to one reported by Dore and Mitman (*Brit. J. Dermat.* **41**:408 [Nov.] 1929) in which the patient had similar lesions of the vegetative type in the axillae, buttocks and perineum. The patient was a woman, aged 55, and the case ran a protracted course of four and one-half years. In their case the comparative unimportance of bullae as a clinical feature, and the predominance of the vegetating masses formed the striking characteristics.

DR. A. E. SCHILLER, Detroit: I think that the case is unusual, and I wish to know the effect of the bacteriophage.

DR. G. H. BELOTE: This patient had different treatments at the same time. She had the Davis treatment and transfusions, and the lesions practically cleared up at one time. She remained at home for about six weeks, but returned much worse than ever before. I think there was some room for doubt that the bacteriophage would be very effective.

DR. R. C. JAMIESON: In a case of mine in which the serum was sent in several months ago, the report was returned as not toxic. As the patient has died since, I do not quite know how to evaluate the test, although one case is not conclusive.

DR. JOSEPH GRINDON: I should like to know whether there were bullae at the sites now occupied by the vegetations. She has some in the mouth.

DR. G. H. BELOTE: On one or two occasions we have seen very small vesicles in the axilla but I think they could not be classified as bullae. They were not the large bullous lesions commonly seen in pemphigus vulgaris.

LYMPHANGIOMA (DAUGHTER). Presented by DR. UDO J. WILE.

H. L., a girl, aged 19 months, had a lesion of the nose which had been present about five months. Apparently there were no symptoms, and there had been no treatment of any sort. The disorder consisted of a linear lesion extending practically the entire length of the nose in the midline, being about 3 cm. in length and less than 0.5 cm. in width. The lesion was made up of numerous pinhead-sized macules, papules, and in a few instances, a few of the small lesions appeared to contain fluid. There was also an associated light brown hyperpigmentation in the region of the lesion.

LYMPHANGIOMA (MOTHER). Presented by DR. UDO J. WILE.

V. L., a housewife, aged 23, was the mother of the preceding patient. She stated that she noted in early childhood in the right axilla and involving the inner surface of the upper part of the right arm, a "bunch" which she was told was a birth mark, and later after excision was told it was made up of vessels. She was not sure whether or not they were blood vessels.

Examination at this time showed a large somewhat triangular scar involving the right axilla and inner surface of the upper part of the right arm. Around the

border of the scar and in a few places in the scar were minute, slightly scaly papules and a few other small pinhead-sized lesions which distinctly contained clear fluid. There was also an associated mild light brown hyperpigmentation.

DISCUSSION

DR. JOSEPH GRINDON: I suppose we are all agreed that the lesion of the mother must have been a circumscribed lymphangioma, but I am not sure of the lesion on the child's nose.

DR. J. H. MITCHELL: I did not examine the lesion closely, but my impression was that it was a linear nevus.

DR. UDO J. WILE: We should like to know whether any one would care to express an opinion as to whether or not the lesion on the child's nose should be treated in any way. We were satisfied that it was a case of nevus in mother and daughter, and I think that probably the lesion on the nose may develop into lymphangiectasis, but the child was brought to us to ascertain whether or not anything should be done to the lesion at this time. This is a delicate question, as to whether we can improve the condition.

DR. OLIVER S. ORMSBY: It is a question whether radium can be used in sufficient strength to remove the lesion without injuring the skin. I think that it could do no harm, and if the lesion is lymphangioma, it probably would clear it up.

THRUSH INFECTION WITH KERATOTIC LESIONS OF THE LIPS. Presented by DR. UDO J. WILE.

C. N., an unmarried woman, aged 76, a retired college professor, entered the University Hospital on Aug. 21, 1929, complaining of a sore mouth and lips. The condition had been present for two years, previous to entrance into the hospital, beginning on the left buccal mucous membrane and spreading progressively. She had sought aid from numerous physicians and received various forms of applications with only temporary benefit. The eruption had been painful at times, and just previous to her admission, she developed horny spicules on the upper lip. Her past history was unimportant.

Examination when first seen, showed an eruption confined to the mucous membranes of the mouth, made up of large dirty white plaques involving the mucosae of the hard palate, both buccal surfaces, gingival margins, and extending onto the vermilion border of the lips. These plaques were slightly raised, presented a fairly bright erythematous base, and were covered by a dirty white cheesy pseudomembrane, which could be scraped off easily. Arising from the vermilion border of the upper lips in a more or less linear arrangement were eight or ten conical shaped nodules varying in size from that of a glass pinhead to that of a small pea, which were grayish-black and of the consistency of normal or gryphotic nail. These tended to be confluent. The base was firmly attached to the lip, and showed no clinical evidence of malignant degeneration.

Material taken from the active lesions and prepared with sodium hydroxide revealed a fungus-like organism. Cultured on Sabouraud's mediums, it was identified by Dr. Fred Weidman as *oidium albicans*.

The horny spicules were removed, the base cauterized, and the mucosae treated with various solutions including silver nitrate, iodine, gentian violet, potassium permanganate irrigations and mild silver protein. The response was fairly prompt, and the patient was discharged to her home physician. She had not been seen since until today. A recurrence was recently reported.

DISCUSSION

DR. PAUL A. O'LEARY: This case is of interest to me because I had an opportunity to care for her also some time ago. At that time she showed similar lesions of the vulva. The leukokeratoses are now much more marked. In the early stages of development, the differential diagnostic problem between thrush

of the mucous membrane, lichen planus and lupus erythematosus is often difficult. Much more difficult, however, is the treatment of this disease in adults.

DR. OLIVER S. ORMSBY: Yesterday afternoon I saw a patient at the Presbyterian Hospital who had been referred to the surgical department and operated on. During convalescence, a severe stomatitis and vaginitis developed. When I saw her yesterday the tongue and buccal mucosa presented an intensely reddened surface, over which were several white plaques. The vaginal mucosa presented a similar picture. As a mycotic infection was suggested, Dr. Finnerud made a microscopic examination with positive results.

DR. CLARK W. FINNERUD: In scrapings from the lesions of the patient whom I saw with Dr. Ormsby, the sodium hydroxide preparations from the mouth and vagina showed practically a solid mass of yeast cells: round, oval and budding forms, partly double-contoured and partly not. I could find no mycelia. Cultures were made, and I shall not be surprised to find mycelia there.

DR. J. H. MITCHELL: I have had three cases of interest occurring in the mucous membrane of patients. One was a man who had been in the south for some time, and had numerous white discrete lesions in the buccal mucosa and along the tongue. These were removed, and in the smears there were monilia organisms; that is, many short mycelia and round spores. These lesions cleared up promptly with the use of an ordinary mouth wash. Since then I have seen two similar cases, one of which I mentioned last summer in San Francisco. There were fissures beginning in the commissures and followed by swelling of the lip. In this case there were no mycelia, and repeated cultures were negative for yeast. Since then I have seen another case with lesions in the buccal mucosa. No organisms can be found under the microscope, but repeated cultures show yeast. The one with swelling of the upper lip comes and goes but apparently does not respond to any treatment that I have been able to give it. The other case persists and is developing more mycotic lesions. There the culture remains positive and the lesions are absolutely resistant to any type of therapy. I have also seen several cases of yeast infection of the vulva associated with pure yeast infection of the vaginal secretion. There is, in my opinion, a very wide variation in the so-called yeast infections both as to the character of the organisms and the response to treatment. We should avoid any generalizations until we have acquired more knowledge of the yeast infection of the mucosa.

DR. C. J. SHEPARD, Columbus, O.: I saw this patient several years ago, when she presented a thrushlike eruption superimposed on a leukoplakia. At this time, however, it was much irritated, probably due to many different applications. She recently had a lesion on the inside of her cheek that looked malignant, and Dr. Wile suggested surgical diathermy. This lesion has entirely disappeared, but the vegetating lesion on her lip returned within two or three months after its removal by Dr. Wile, and since then we also removed it. She has not responded to anything, although, outside of the heat, her treatment has been empiric and palliative.

DR. CLARK W. FINNERUD: I have recently seen a man about 40 years of age, with a lesion of the lower lip of almost four months' duration. The lip is several times its normal size. The borders of the lesions are verrucous but rather soft, and the whole process seems to be rather superficial. There is no apparent involvement of the regional lymph gland. Several surgeons were considering surgical measures, thinking it to be a squamous cell growth, basing their opinions partially on their histologic observations. Realizing that a mycotic granuloma can produce a picture that may simulate a squamous cell lesion to a marked degree, histologically as well as clinically, we made an extemporaneous sodium hydroxide examination and found all of several specimens loaded with mycelia and spores. Cultures were made at this time which as yet have not had sufficient time to show growth. We have started treatment with roentgenotherapy, arsphenamine and potassium iodide, although we are still uncertain as to the diagnosis.

DR. UDO J. WILE: I think that this patient represents the worst case of therapeutic failure I have ever encountered. When she left the hospital there was nothing that would suggest a recurrence of the papillomatous lesions on the upper lip, which bothered her more than the leukoplakia. I think that no record has ever been found of *Oidium albicans* causing verrucous lesions, but we have the analogy in blastomycosis. I think that these lesions are, therefore, the analogy of the horny growths we see in blastomycosis. Why this should occur is not difficult to understand, for her mouth is filled with organisms of all kinds, and they are implanted on the sites of removal at the time the removal takes place. I know that Dr. Shepard is eager to know what form of treatment should be employed from now on. Would radium affect the lesions? Should they be removed by heat? We cannot give any assurance that they will not recur, and sooner or later they may undergo a malignant change.

DR. W. H. GUY: Has a section been made from the large plaque on the inside of the mouth well back?

DR. UDO J. WILE: No, I think that would be a rather dangerous thing to do in a region so densely populated by *Oidium albicans*. Cauterization has been employed, but I do not think we touched the hard palate.

DR. PAUL A. O'LEARY: The question has arisen as to whether or not the cauterization she had at our hands may not have increased the tendency to leukokeratosis, because there was very little of it present when I saw her about one year ago.

MONILETHRIX. Presented by DR. H. J. PARKHURST.

M. P., a girl, aged 7, presented a dryness and fragility of the hair, especially over the occiput, of at least six years' duration. The hairs were short, and there was keratosis pilaris of the lower occiput. The hairs showed a regular beaded appearance. A cousin, aged 13, the daughter of the father's sister, was said to have the same trouble.

DISCUSSION

DR. H. J. PARKHURST: I thought possibly some of you might have some new therapeutic suggestions, as the treatment has not been satisfactory.

KERATOSIS FOLLICULARIS. Presented by DR. HARTHER L. KEIM.

P. W., aged 17, first noticed lesions appearing on the back and legs, four years before presentation. Since that time the condition had been slowly progressive. It was essentially asymptomatic, and had been rebellious to treatment. No other member of the family was similarly afflicted.

Involving the scalp, trunk and extremities was a strikingly symmetrical reddish-gray papular eruption. The younger lesions were follicular, tended to be discrete and were partially covered with brownish, adherent scales. On the legs where the lesions had become confluent, heavy crustlike scales persisted. The mucous membranes were uninvolved. A small lesion was removed from the upper part of the back for study, and microscopic examination revealed some hyperkeratosis with marked thickening of the rete. Numerous "psorosperm bodies" in various stages of hyalinization were found throughout the epidermis. The upper corium adjacent to the epithelial changes presented a diffuse cellular infiltrate.

DISCUSSION

DR. H. E. MICHELSON: I thought this was a striking example of Darier's disease, with lesions on the palate and lid and conjunctiva on the right side.

DR. H. L. KEIM, Detroit: The case was presented as a characteristic example of Darier's disease. I have tried to decide whether or not the lesions on the hard palate were part of the clinical picture.

BROOKLYN DERMATOLOGICAL SOCIETY

A. M. PERSKY, M.D., *Secretary*

Feb. 16, 1930

E. A. GAUVAIN, M.D., *Presiding*

DERMATITIS HERPETIFORMIS. Presented by DR. ABRAHAM WALZER.

A. D., a boy aged 11 months, had had the eruption since he was 3 months of age. When he was first seen at the Good Samaritan Dispensary two weeks before presentation, he had bullous lesions, distributed symmetrically on the face, neck, ears, shoulders, hands, genitals and thighs. The lesions varied in size from that of a pinhead to that of a splint pea. Some of the lesions became purulent, and were surrounded by erythema. Others broke and became crusted. In some, the bullae showed a central depression, giving the impression of a variola lesion. On disappearing, they left a pigmented area. The lesions occurred in groups as well as in single scattered lesions. New lesions were constantly reappearing in the same locations. There was no severe itching. The mucous membranes were not involved.

DISCUSSION

DR. ELIAS W. ABRAMOWITZ: I agree with the diagnosis of Duhring's disease. The lesions are bullae in some places with a slight areola around them. They have recurred several times. Grouping is not pronounced, but it is not a necessary feature in children. There are no systemic symptoms. Some years ago, Knowles, when reporting a case in a child, collected fifty-seven cases in the literature. Some of the ages mentioned by Knowles were 13 weeks, 5 months, 7 months, 10 months, etc. Some of the lesions followed vaccination (as long as four months later), and the eruption was attributed to it. Itching, multiformity and grouping were usually absent. A marked feature was eosinophilia in the blood. McCall Anderson also found hematoporphyrinuria. (Knowles, F. C.: Dermatitis Herpetiformis in Childhood: Report of a Case in a Child of Six Years, *J. Cutan. Dis.* **25**:246 [June] 1907.)

DR. JACOB SKEER: All these lesions present vesicles and bullae with an areola surrounding each lesion. There is dermatographism present. I think that this is a case of vesicular urticaria instead of dermatitis herpetiformis.

DR. W. H. BEST: I am opposed to the diagnosis of dermatitis herpetiformis on the ground that the lesions are not herpetiform. There are numerous distinct single lesions. I also want to take issue with Dr. Skeer that the lesions have an erythematous area around them, that is, are on an erythematous base. There is one lesion on the arm, a single large vesicle, and several on the back which show an absence of erythema. I am inclined to believe that it is a toxic rash.

DR. ABRAHAM WALZER: This patient is greatly improved since the first time she was observed, but she still shows some primary lesions, especially on the forearm. All the lesions began as bullae on a normal skin. New lesions which appeared on sites of past lesions would show some erythema of the site, but such erythema is the remains of the previous lesions. The bullae are constantly recurring. They do not show a marked tendency to grouping and are not markedly itching. These features are characteristic of dermatitis herpetiformis in children, but not in adults.

ERYTHEMA MULTIFORMI BULLOSUM. Presented by DR. DARWIN HECHT.

Miss C., aged 23, a school teacher, two months prior to presentation, developed an erythemato-vesicular eruption on the legs and arms, which later spread all over the body. The eruption developed during a course of injections of vaccine for acne vulgaris.

DISCUSSION

DR. JACOB SKEER: The patient has received medicaments, so that it is necessary to rule out dermatitis medicamentosa.

DR. B. B. BERKOWITZ: Attention should be paid to the fact that this patient gives a definite history of erythema, pains in the knees, and sore throat, previous to the appearance of the eruption.

DR. ABRAHAM WALZER: I saw this patient about ten days ago. At that time she had elevated, erythematous lesions, about the size of a dime, scattered over the entire body and extremities. She gave a history of having received injections of vaccine for acne, and that during the course of these injections the rash developed. The question then arose, as to whether it was a case of an allergic dermatitis as a result of the injection of the vaccine. Vaccines ordinarily consist of three ingredients: the organism, the culture mediums and very often the preservative, such as phenol. Any one of these three substances may sensitize a person. The fact that she received about eight injections of vaccine, and that the rash appeared first as a small patch around the umbilicus, three or four days after the last injection, and then in about two weeks spread to the rest of the body, clearly indicates that the vaccine was the precipitating factor in this condition. To my mind, the whole thing is an allergic dermatitis following a series of injections of vaccine. To which one of the three ingredients in the vaccine this is due, I cannot positively say, though I strongly suspect the bacteria. Such reactions occur occasionally after the use of vaccines or serum.

DR. E. A. GAUVAIN: I think this case is purely a toxic disturbance and not directly connected with the injection of vaccine as a protein sensitization.

DR. ELIAS W. ABRAMOWITZ: The eruption is bullous, and although it gives the appearance sometimes seen in a very marked bullous dermatitis venenata, the lesions are scattered, the bullae discrete, and there is so little inflammatory reaction that one can exclude dermatitis venenata. Such eruptions, as a rule, do not come from vaccine but from serums and are a part of serum sickness or serum disease. They have a definite incubation period of from six to nine days, and are accompanied by constitutional symptoms. Sometimes there is a delayed serum sickness which may come on as late as six months following the injection, but there are the same group of symptoms: sore throat, fever, pains in the joints, urticaria, and not much in the way of bullous lesions—usually a scarlatiniform eruption. The serum sickness is due to the fact that the patient has been sensitized to horse serum. We are probably dealing here with a toxic eruption, which to my mind, has nothing to do with vaccine, but is of some other nature rather difficult to determine. The vaccines may have acted only as a provocative agent of a preexisting infectious focus. Nulian, also Stokes, described such cases after the use of the arsphenamines.

A CASE FOR DIAGNOSIS (DERMATITIS ARTIFACTA). Presented by DR. JOHN COOPER GRAHAM.

C. S., aged 19, a nurse, was seen two months previous to presentation, complaining of a bluish, crusted papule on the right thigh about 2 inches (5 cm.) above the knee. Subjective symptoms were those of burning. In three weeks this lesion disappeared leaving a scar, when the second similar lesion occurred about 1½ inches (3.8 cm.) below the first. In the second lesion there was no crusting, but it was healing at the time of presentation, forming a scar similar to the first. On the day she was presented, a third lesion developed over the knee cap, irregular in outline and purplish; surrounding this lesion, about ⅛ inch (0.3 cm.) beyond the purple area, was a bright red margin. This areola was not present in the previous lesions. The patient was a normal healthy girl.

DISCUSSION

DR. ELIAS W. ABRAMOWITZ: I suggest a feigned eruption in this case.

PAGET'S DISEASE OF THE NIPPLE. Presented by DR. W. H. BEST.

M. O., aged 55, and single, was born in the United States. Five years previous to presentation, the patient noticed blood coming from the left nipple. This bleeding occurred at intervals for about a year. Six months later, a red scaly spot formed over the nipple and remained stationary for two years, when it began increasing in size until it involved the entire areola. There had been slight itching. At presentation she showed a lesion which was round, circumscribed, infiltrated and about 6 cm. in diameter. The margins were slightly elevated, the surface was red and glazed, and there was a sticky mucoid exudate present. The nipple had disappeared and in its place there was a depression. The breast was not enlarged; no masses nor glands in the axilla could be palpated.

DISCUSSION

DR. DARWIN HECHT: I accept the diagnosis of Paget's disease.

DR. W. H. BEST: The question of therapeutics always arises in these cases. It has been suggested that the breast should come off at the earliest possible moment. However, MacKee reports favorable results with intensive doses of the filtered roentgen ray, and in the absence of any distinct changes in the breast in this case, it seems feasible to give the patient the roentgen ray treatment first.

A CASE FOR DIAGNOSIS (ACRODERMATITIS CHRONICA ATROPHICANS). Presented by DR. FRANK.

A. H., a housewife, aged 34, an Austrian by birth, complained of pains in the ankles and joints and discoloration of the skin over the left ankle, leg and thigh, and the external surface of the left buttock. The condition started four years previous to presentation, with an erythematous eruption on the outer surface of the leg near the ankle. About two and a half years later the other regions were involved. At presentation she exhibited a sharply outlined, slightly indurated lesion; the color varied from red to violaceous and disappeared under pressure. A Wassermann test was negative.

DISCUSSION

DR. ABRAHAM WALZER: I think it is a case of acrodermatitis chronica atrophicans in an early stage.

DR. JACOB SKEER: I agree with the diagnosis, acrodermatitis, but I think it has taken on some aspects of scleroderma. The skin is indurated and there seems to be pigmentation and atrophic spots, especially on the thigh. The atrophy over the lesion on the thigh is tense instead of wrinkled as seen in acrodermatitis.

DERMATITIS MEDICAMENTOSA (BISMUTH). Presented by DR. E. A. GAUVAIN.

H. R., married, aged 41, had had a maculo-papular eruption of secondary syphilis for two months before she was first seen by the presenter in August, 1927. The Wassermann reaction of the blood was 4 plus. She received injections of mercury, also of neoarsphenamine. The eruption promptly disappeared and in December, 1927, the Wassermann test was negative. During her second course of treatment, the patient reacted severely to neoarsphenamine, which was discontinued after the third injection; but mercury was continued for nine injections. At this time, her treatment was changed from mercury to bismuth, of which she received five injections. After an interval of seven weeks, the Wassermann reaction was 1 plus, and she was given nine injections of bismuth and three of mercury. The injections of mercury (1 grain [0.06 Gm.] of mercuric chloride) were the third, fourth and sixth injections. At the termination of this course of treatment, which was nine months after her last injection of neoarsphenamine, she had lesions on the hands which resembled lichen planus, and the skin over the elbows was keratotic. The Wassermann test remained

negative from December, 1928, until March, 1929. In July, 1929, she developed an eruption which gradually involved the entire body, except the face. This eruption appeared to be pityriasis rosea. As the patient's Wassermann test was again 1 plus, she was given an injection of bismuth once a week for a total of twelve injections. This carried her to a period of six months after the onset of the eruption over the body. There was no relief from the eruption during this period despite local therapy, and the patient noticed particularly toward the end of the course of treatment that the eruption became more vivid after each injection and subsided before the next injection.

Three weeks before presentation, the patient was given sodium thiosulphate tablets, enteric coated, 15 grains (0.97 Gm.), three times daily. This caused an increase in the lividity of the eruption, and the patient, who had been treated for gastric ulcer, developed nausea on taking the drug. The tablets were discontinued for one week, when she began taking 7½ grains (0.48 Gm.) three times daily. The condition had slightly improved when the patient was last seen, one week before presentation. The gums showed a blue line on the surface.

DISCUSSION

DR. W. H. BEST: I would not consider the rash as it appears now as pityriasis rosea. The lesions are not elongated, they do not follow the lines of cleavage and they do not show any scales. I do not know that I have ever seen a rash from bismuth, so I cannot make any comparison between a bismuth rash and this one. On the facts presented—the course, with the history that there was an efflorescence of the lesions after the injections of bismuth—I would presume that the bismuth was instrumental in producing or at least aggravating the rash.

DR. ELIAS W. ABRAMOWITZ: Often an ordinary dose of a drug will bring on symptoms that closely resemble the toxic symptoms occurring in a patient who receives a poisonous dose. A bismuth line will occur in some patients with a small dose and in some it will not appear until large doses have been given repeatedly, so that the fact that the patient shows a blue line, does not necessarily mean that she has been getting a large amount of bismuth, but that she possibly shows intolerance to bismuth. If she shows intolerance, she may have an eruption of the skin due to the same cause. If the patient is getting bismuth and the eruption is aggravated and disappears when the bismuth is discontinued, it is logical to assume that we are dealing with a bismuth eruption.

DR. DARWIN HECHT: I want to take exception to the statement of Dr. Abramowitz that if the administration of bismuth is stopped and the eruption disappears, it would indicate a bismuth eruption. The patient could have any eruption, the bismuth could be discontinued and the other disease would disappear at the same time.

DR. ABRAHAM WALZER: I think the blue line on the gums speaks against the eruption being due to bismuth, for the same reason that drug toxicity and drug sensitivity are entirely different conditions, and do not usually occur in the same person. Any person who gets enough bismuth into the system will show the blue line on the gums, because it is the pharmacologic reaction of the drug and means intoxication with that drug. It is not, however, a question of quantity either, because the amount of drug that one can tolerate may vary in different persons. The blue line, however, means that that patient has all the drug that he can stand. On the other hand, no matter how much bismuth is given a patient, it will produce a rash only in one who is sensitive to this drug. Under these conditions, I am not inclined to accept the rash as due to bismuth. One usually does not see both in the same person at the same time.

All kinds of eruptions have been described following the use of bismuth, including one that resembles pityriasis rosea. I think that under the circumstances

it would be advisable to discontinue the bismuth, and if the eruption disappears definitely, that would be another proof that it was due to bismuth.

Dr. E. A. Gauvain: When I saw the patient last September, she presented an eruption which I had no hesitancy in diagnosing as pityriasis rosea. If I were examining her today for the first time, I would not make that diagnosis; I would not know what diagnosis to make. When I thought it was pityriasis rosea, I felt it would not amount to much and that the eruption would soon disappear. She had had the eruption then for two months. I believed that in another few weeks she would have recovered from the eruption. In looking back over the history of the case, I recall the eruption which appeared on the hands and which, at that time, I thought was lichen planus. I questioned the patient very closely about that this evening. You will recall that she was absent from treatment and observation for a period of six months, during which time this eruption appeared. She said the eruption on the hands disappeared entirely and that her present lesions came out as a separate eruption. The patient also had an attack of herpes zoster during the course of treatment. She has been a dermatologic museum to me.

Among the other things to confirm my diagnosis, is the fact that when we administered the sodium thiosulphate there was an increase in the lividity of this eruption. I suppose Dr. Throne would describe that as he did my question last month, that after the administration of thiosulphate, the metal is eliminated, in part, through the skin, and that may have increased the skin reaction to the bismuth.

Carcinoma. Presented by Dr. Abraham Walzer.

R. S., aged 46, developed a mass in her right breast with an associated discharge from the corresponding nipple three years before presentation. The mass was excised. About a year later (two years before presentation), another mass appeared in the same breast. A complete removal of the breast, together with the axillary glands of the same side was done. This was followed by three radium treatments, the last one about a year before presentation.

The condition for which she was presented was of one year's duration, following the last radium treatment. The ulcer was of three months' duration. When the patient was presented, the following were observed: The entire upper right extremity was considerably thicker than the left, and felt very brawny. Over the anterior axillary line was an elongated scar, and on either side of this scar was a white, glistening, scleroderma-like patch, thin and not freely movable over the underlying structure. The upper part of this area was more infiltered than the lower part. On the right shoulder anteriorly was a large indurated elevated mass the size of a palm, sharply outlined, with a red border. The inner part of this was ivory, morphea-like, with many dilated vessels running across it, while the outer part had a large, deep ulceration, the size of a dollar, filled with a necrotic mass.

DISCUSSION

Dr. John Cooper Graham: I am of the opinion that this is not a carcinoma of the skin. I think it is a radiodermatitis as a result of exposure to radium.

Dr. B. B. Berkowitz: I think that it is a combination of radium dermatitis and carcinoma.

Dr. W. H. Best: I agree with Dr. Berkowitz

Dr. Elias W. Abramowitz: It seems to me that there is a radiodermatitis there and the ulceration is also due to the radiodermatitis. The radium ulcer may be undergoing malignant degeneration. I believe the lesion at the side of the chest is a scirrhus carcinoma.

Dr. Abraham Walzer: While she may have some effect resulting from the application of radium, I believe the primary process is a secondary carcinomatous involvement of the skin, with degeneration.

DETROIT DERMATOLOGICAL SOCIETY

H. J. PARKHURST, M.D., *Reporter*

Regular Meeting, Feb. 18, 1930

A. E. SCHILLER, M.D., *Presiding*

A CASE FOR DIAGNOSIS. Presented by DR. STEVENS and DR. HASLEY.

E. P., a mulatto woman, aged 21, presented a scattered eruption of small papules on the face and trunk, the eyelids being involved. Also on the trunk and extremities there were many coin-sized groups of tiny follicular papules, and deep nodules were palpable beneath the skin of the arms. There was a general lymph node enlargement, and pulmonary tuberculosis had been active for nine years. The eruption and nodules were of less than five months' duration. The pathologist considered a lymph node tuberculosis.

DISCUSSION

DR. PARKHURST: The entire clinical picture seems to be one of tuberculosis. The lesions on the face and back are apparently miliary tuberculosis of the skin; the masses felt in the arms may be nodular tuberculosis of the hypoderm, and the grouped follicular papules are lichen scrofulosorum.

NEURODERMITE. Presented by DR. SCHILLER and DR. SCHLEGELMILCH.

J. H., a Negro girl, aged 14, had a large coin-sized, round, sharply outlined, infiltrated patch in the nuchal region. It was of a month's duration, and had enlarged constantly.

MOLLUSCUM CONTAGIOSUM. Presented by DR. DIXON.

S. K., a boy, aged 14, presented many umbilicated, large pinhead-sized, pale papules on the neck and trunk, of three weeks' duration. The patient stated that a neighbor boy and the boy's parents had the same type of eruption.

MELANOCARCINOMA. Presented by DR. BEHN.

F. R., a Mexican laborer, aged 28, stated that he had always had a small bluish-black mole on his forehead. Four years before presentation the mole had been injured by the hat brim, with temporary ulceration followed by gradual, apparently complete healing. About four months later the patient had fallen, injuring the mole a second time, with resultant laceration and bleeding. Since that time the ulcer had gradually enlarged to the size of a small palm, with elevated borders, and bled freely on slightest trauma. It was definitely infiltrated, and the central portion was fixed to the underlying bone.

MELANOCARCINOMA. Presented by DR. BEHN.

Mrs. J. O. D., aged 26, had had a jet black mole in the midscapular region which had been injured, with profuse bleeding, a year previously. At that time the lesion was said to have been burned with an electric needle. Following this the lesion had recurred and enlarged rapidly, forming a large coin-sized, bluish-black, infiltrated mass. The surrounding tissue was indurated.

PEMPHIGUS. Presented by DR. SCHILLER and DR. SCHLEGELMILCH.

J. B., a man, aged 64, an inspector in a foundry, had had generalized itching and burning sensations for four months. Prior to that time he had been under medical treatment for anemia for six months. After the onset of the itching, the

eruption had appeared in the form of painful blisters on the feet. The wrists, arms, face and trunk had then become involved, and the upper and lower extremities had swollen. The bullae were of various sizes. Four complete blood counts had shown a hemoglobin percentage of from 80 to 95, an erythrocyte count varying between 3,280,000 and 4,980,000, and a leukocyte count of from 12,000 to 30,000, with from 34 to 73 per cent polymorphonuclear cells and from 10 to 34 per cent eosinophils. Two blood transfusions had been given.

DISCUSSION

DR. SCHILLER: In this case the Davis treatment and transfusions apparently failed, but improvement followed the administration of tryparsamide as suggested by Dr. Grindon.

A CASE FOR DIAGNOSIS. Presented by DR. BEHN.

Mrs. M. H., a housewife, stated that fifteen years previously she had first noticed several small papular lesions on the sides of the neck. These had enlarged and persisted, and more had appeared, extending over the chest and into the axillae. The abdomen had been involved more recently. The lesions were brownish and small pea-sized. Histologic specimens were shown.

DISCUSSION

DR. PARKHURST: This case seems similar to that described by Weidman and Besancon recently in the ARCH. DERMAT. & SYPH. **21**:279 (Feb.) 1930, presenting syringoma on the trunk and epithelioma adenoides cysticum on the face.

PAPULONECROTIC TUBERCULID; SARCOID (BOECK). Presented by DR. JAMIESON.

Miss A. L., aged 35, had been presented before the society in October, 1929, with the diagnoses of papulonecrotic tuberculid and sarcoid of Boeck. The pathologist had diagnosed lesions on the arm as tuberculosis. Later, a biopsy on a lesion on the back confirmed the diagnosis of sarcoid. During treatment with gold compounds the papulonecrotic lesions had faded, but not the sarcoids. Endocrinous studies had revealed calcification of the sella turcica, disturbances of the pituitary and thyroid glands, with excess weight and hyperglycemia.

NEVOCARCINOMA. Presented by DR. STEVENS and DR. HASLEY.

J. DeC., a girl, aged 4 months, presented a brown-violaceous area, 10 cm. in diameter, involving the thigh, vulva and lower part of the abdomen, which had been present at birth as a small lesion on the thigh and had extended rapidly. Biopsy had caused severe hemorrhage. The diagnosis had been confirmed histologically, and intensive deep irradiation was being administered, with apparent benefit.

NEW YORK DERMATOLOGICAL SOCIETY

J. F. FRASER, M.D., *Secretary*

Regular Meeting, Feb. 25, 1930

PAUL E. BECHET, M.D., *President*

LUPUS ERYTHEMATOSUS. Presented by DR. G. M. MACKEE.

J. P., a man, aged 34, from the New York Post-Graduate Skin Clinic, had had an eruption on his face for one year. The eruption consisted of patches varying in size from that of a dime to that of a quarter, scattered over the cheeks and

forehead. The lesions were well marginated, dark red, and slightly scaly; the scales were not firmly adherent. There were no atrophy, telangiectasia or patulous follicular orifices. The subjective symptoms consisted of slight itching at times. There were small patches on and in the ears. The eruption had been stationary for many months. The scalp was normal. The eruption had not improved under the influence of roentgen therapy, white precipitate ointment, lotio alba and other topical remedies. Physical examination and a complete laboratory examination gave negative results. A tuberculin test had not been performed. The patient refused to permit a biopsy to be made. Gold and arsenic therapy had not been tried; the patient had not received injections of any kind.

This type of eruption is fairly common and is usually called seborrheic dermatitis. The presenter was of the opinion that such cases might belong in the tuberculosis group.

UNILATERAL NEVOID ERUPTION. Presented by DR. HOWARD FOX.

A. B. F., a business man, aged 36, had first noticed the eruption at the age of 12. It occupied the left side of the face and consisted of about two dozen slightly elevated, soft, flesh-colored, smooth lesions varying in size from that of a millet-seed to that of a pea. A few were semisolid; most of them were discrete. No material could be expressed from any of the lesions. The eruption suggested unilateral benign cystic epithelioma. A few of the lesions had been treated by other physicians with electrolysis, radium and acids, without permanent result.

DISCUSSION

DR. W. J. HIGHMAN: I noticed that these lesions could be compressed, and for that reason I believe that a microscopic examination would show the picture of lymphangioma circumscriptum multiplex, or lymphangectasia.

DR. G. M. MACKEE: I partly agree with Dr. Highman. I do not think that it is benign cystic epithelioma, but that it is either fibroma or myxoma. I feel as Dr. Highman does, that under the microscope it will probably give a nevoid picture or one of some form of degeneration, probably myomatous.

DR. HOWARD FOX: The diagnosis is a question for histologic study.

PITYRIASIS RUBRA PILARIS. Presented by DR. G. M. MACKEE.

J. M., a girl, aged 8, was from the New York Post-Graduate Skin Clinic. The family history was nonessential. A biopsy had been made at the Skin and Cancer Hospital, but the result was unknown. When the patient was a few months of age, the eruption began behind the ears and slowly became generalized.

When the patient was presented, the eruption involved the scalp, face, ears, neck, trunk, elbows, knees and all the nails of the fingers and toes. The nails were white at the distal extremities and showed pits and longitudinal striations. There was subungual hyperkeratosis. The scalp was covered with dry, silvery scales. The entire face, including the nose, was erythematous and covered with a multiple of tiny, pointed, dry, keratotic papules. There were red scaly patches on the ears. On the lateral surfaces of the neck and upper part of the back, the skin was erythematous and the entire area showed horny follicular papules suggesting the appearance of an nutmeg grater. A large patch covered the anterior part of the neck and most of the chest. The erythematous patch consisted mostly of flat-topped, shiny, square papules the size of a pinhead, similar to the elementary lesions of lichen planus. In places, the patch was slightly scaly; in other places, the papules showed a linear arrangement. Scaly patches the size of a dime, suggestive of psoriasis, were located near the posterior axillary folds. Similar small patches were on the anterior surfaces of the knees and the posterior surfaces of the elbows.

The patient had been under the presenter's observation for only one week and had not been thoroughly examined. The eruption was said to have been obstinate. It had improved somewhat during the summer, apparently as a result of heliotherapy. When the patient was presented, there were numerous white patches due to exfoliation of tanned epidermis.

The diagnostic possibilities were psoriasis, lichen planus, arsenical dermatitis and pityriasis rubra pilaris.

DISCUSSION

DR. HOWARD FOX: I do not suppose that Dr. MacKee consders this a classic case of pityriasis rubra pilaris. It certainly lacks the ear-marks of this disease, such as palmar keratosis and follicular plugs on the fingers. The individual papules do not appear to be especially acuminate. The case should be further observed before a definite diagnosis is made.

ATROPHIA CUTIS OF THE KNEES AND ELBOWS. Presented by DR. FRED WISE.

M. S., a woman, aged 17, presented lesions of the knees and elbows which had been present since birth. The father, paternal uncle and one paternal cousin had had similar lesions, while the skin of her brothers and sisters was not affected. She had applied for treatment at the Post-Graduate Skin Clinic.

The skin covering the knees and elbows, presented patches of brownish-yellow, wrinkled, soft and atrophic skin, occupying an area roughly circular in shape and about 3 inches (7.6 cm.) in diameter. In the midst of the soft, atrophic skin, were areas of distinct scar formation, some of which, the patient stated, were due to injuries from falls, others the result of operations intended to remove the discolored patches. The color of the skin was like that of a patch of xanthoma which had undergone atrophic changes. On both elbows, the lax skin presented several nodules of the size of a pea, which appeared to be cystic. Histologic examination revealed atrophy of the skin, advanced disintegration of the elastic tissue and numerous large and small sebaceous cysts in the corium. The skin of the forearms and legs was universally soft and elastic and presented the lesions of keratosis pilaris.

The condition was probably a congenital, familial, nevoid disease.

DISCUSSION

DR. HOWARD FOX: The condition suggested striae atrophicae to me. I have a photograph of a patient which looks somewhat like this one, except that the hands are not quite so broad as in this case.

DR. JOHN E. LANE: It is fairly certain that the lesions in this case must be classed as nevi. I could see no resemblance, to striae atrophicae, which Dr. Fox has suggested.

DR. W. J. HIGHMAN: The patient has scars which followed an injury, but she has something else that she was born with, or that appeared shortly after, and these lesions feel as though the collagen were altered. Under the microscope I could not determine its nature, but it looked myxomatous or like some degenerative process.

DR. G. M. MACKEE: My views are the same as those of Dr. Lane and Dr. Highman. I would like to call attention to the futility of trying to do anything for these scars. I have seen a number of patients without visible congenital defect about the elbows or knees who had an incised wound followed by natural healing, and later the scars spread to an inch (2.5 cm.) in width. When such scars are excised, the same spreading will again occur. As Dr. Highman said, it seems to be due to a myxomatous type of tissue.

DR. FRED WISE: I accept Dr. Highman's interpretation, although he said nothing about the cysts. The fact that the father, uncle and cousin have almost the same lesions would put this dermatosis in the nevoid or familial group of skin diseases.

FOLLICULITIS DECALVANS AND LICHEN SPINULOSUS. Presented by DR. E. F. TRAUB.

A. M., aged 35, a tailor, was born in Austria. His father, who had always been in good health, died of pneumonia. His mother, one brother and two sisters were living and well. No one in the family had had diseases of the scalp or skin. The patient himself had had only measles and grip during his life time. He gave no history of having taken drugs of any kind before the appearance of the eruption.

The condition had begun about two years previous to presentation with a loss of hair in small patches scattered over the scalp, particularly anteriorly. Very little inflammation or scaling had been noted at any time. From four to six months prior to presentation, an eruption was first noted on the body; this had given very few subjective symptoms, only at times being slightly itchy. There was a multiplicity of types of lesions on the body. On the face were two symmetrical patches, about 2.5 cm. in diameter, located over each malar eminence and directly anterior to each ear. The only characteristic features to be distinguished in these spots were the distinct atrophy and pigmentation. The patient stated that these lesions had not looked different to him at any time. On the trunk there had been scattered spiny and follicular lesions, small rounded patches with clearing centers and elevated borders, leaving pigmentation in their wake. About the axillae, and particularly about each flank below this region, there had been a profuse, slightly elevated, deeply brownish-black pigmented eruption. Some of the scattered lesions distinctly resembled an annular lichen planus, and the pigmentation that followed such lesions fitted in with this conception. The follicular eruption resembled a type of grouped lesions frequently seen in lichen scrofulosorum, and for some time this diagnosis had been considered as a possibility. Hardly at any time since the patient had been under observation, had classic spiny lesions such as are usually found in lichen spinulosus been noted; yet, though this feature was not as definite as it might be, the eruption distinctly fell into this group.

The Wassermann reaction was negative. A biopsy taken from a lesion on the right side of the trunk, showed chronic inflammatory tissue.

DISCUSSION

DR. FRED WISE: I accept the diagnosis, but I would not call the eruption on the trunk lichen spinulosus, but rather keratosis pilaris.

DR. H. H. WHITEHOUSE: I think that the condition is follicular keratosis.

DR. G. M. MACKEE: I think that the condition might have been lichen spinulosis. The patient had been using unguents over a period of several weeks and that may have modified the condition.

ERYTHEMA CENTRIFUGUM PERSTANS. Presented by DR. G. M. MACKEE.

Mrs. H. S., a saleswoman, aged 32, divorced, was from the New York Post-Graduate Skin Clinic. Her father had died of diabetes and heart disease; otherwise, the family history was nonessential.

Three years before presentation, the patient had had attacks of abdominal pain, and about the same time, enlargement of the thyroid was noted. She lost 30 pounds (13.6 Kg.) in less than a year, and a diagnosis of hyperthyroidism was made. Roentgen treatment of the region of the thyroid caused a reduction in the size of the gland, and the patient regained some of the lost weight, but the attacks of abdominal pain and indigestion continued.

Coincident with the onset of hyperthyroidism, an elevated annular lesion appeared on the dorsal surface of the right wrist; the lesion broke into several nodules and disappeared in three months. Three months later, a similar lesion developed in the same location, with additional lesions on the forearms. Since then, the patient had had repeated outbreaks of lesions of a similar character; she

had very seldom been entirely free from the lesions. The average duration of the lesions was three months, but one lesion on the buttock had been present for nine months.

The patient had been under observation for three months. The lesions began as hard nodules the size of a split pea which increased in size by peripheral extension, at the same time clearing in the center and often breaking into individual nodules or forming annular and gyrate lesions, never larger than an adult palm. Most of them ranged in size from that of a split pea to that of a dime. The lesions at first were pale red, later assuming the color of normal skin. The elevation varied from 1 mm. to 1 cm. The lesions were scattered sparsely over the arms, abdomen, chest and back, with a few on the thighs; they markedly resembled granuloma annulare. There had been a change in the character of the lesions one month before presentation. They were smaller, more superficial, more inflammatory and with less configuration, and many of them were vesicular on the surface, resembling erythema multiforme.

Intradermal tests showed sensitization to chicken, coffee, egg yolk, prunes and cocoa. The blood chemistry, urinalysis, Wassermann test, blood count, hemoglobin and basal metabolism were approximately normal. The stool was normal and and there was no constipation. Investigation for foci of infection yielded negative results. Two biopsies, one on an old lesion and one on a new lesion showed the same picture, namely, a simple exudative inflammatory process. The only subjective symptom relative to the eruption was slight pruritus. Dermatitis venenata had been excluded as also had drug eruptions.

DISCUSSION

DR. JOHN E. LANE: I think that Dr. MacKee's diagnosis is the probable one. I was struck with the appearance of some of the older nodular lesions, which must suggest the nodules in old cases of neurodermatitis.

DR. BINFORD THRONE: In my conception, this case belongs to that class of conditions described by Darier under the title of erythema papulo-circiné migrateur et chronique. We have had six such cases at the Skin and Cancer Hospital during the past year. We have been unable to find out anything in regard to their causation or to do anything to prevent recurrences.

ARGYRIA PROBABLY DUE TO MILD SILVER PROTEIN. Presented by DR. HOWARD FOX.

H. C. N., a stenographer, aged 28, first noticed an eruption on her face three years prior to presentation. About four years previously she had consulted a nose and throat specialist who painted her throat once a week with silver nitrate for a period of two or three months. Later she began to use a brand of mild silver protein in a 10 per cent watery solution for long periods, on her own responsibility. She applied the solution to the nose and throat daily for four or five months (from November to April) for three consecutive years. She stopped the applications when she noticed the beginning of discoloration of the face. The onset of the eruption was gradual, and apparently had not progressed in the past six months. It became noticeably worse after prolonged exposure to the sun at the sea shore.

When the patient was presented, there was a noticeable slate blue pigmentation of the face, most marked on the forehead, nose and lips. There was a suggestion of the same discoloration on the chest and the upper part of the back. The patient was well nourished and in excellent general health.

DISCUSSION

DR. H. H. WHITEHOUSE: I agree with the diagnosis.

DR. G. M. MACKEE: According to the history of the case, the patient had received applications of silver nitrate. She has had a great deal of mild silver

protein. There are not many recorded cases of argyria due to this drug. I believe that this is such a case because if it was due to silver nitrate the discoloration would have occurred sooner.

DR. H. J. SCHWARTZ: I think that the development of argyria from the use of mild silver protein must be more common in Europe than in this country. I have a sister who lives in Sweden, and she has told me that the doctors there are very much opposed to the use of mild silver protein on that account.

DR. HOWARD FOX: It is important for the profession to know that argyria may be produced by using mild silver protein, and that this supposededly harmless drug cannot be used for long periods of time with impunity. It would appear almost certain that the eruption in this case was due to this substance. The proof is not absolute, however, as the patient had previously been treated by silver nitrate.

A CASE FOR DIAGNOSIS (PEMPHIGUS VEGETANS?). Presented by DR. HOWARD FOX.

Mrs. M. D., aged 66, an Italian, presented a lesion in the hypogastric region, of three months' duration. She stated that she had suffered from a similar lesion two years previously, which lasted several months and then disappeared spontaneously. When the patient was presented, the eruption consisted of an oval annular lesion of about 3½ inches (8.8 cm.) in its longest dimension. It formed a ring, suggesting a keloid; the upper part was elevated and firm to the touch, and the lower part barely perceptible to the touch. Slight tenderness was present. The skin covering the ringlike lesion suggested the cover of a large flaccid bulla, fluid being distinctly noted in the lower portion. The general health was good and the patient had not lost weight. The Wassermann test was negative. A previous histologic examination at another institution was reported as showing simple inflammation. A later histologic examination by Dr. Highman showed a subacute and chronic inflammatory exudative process with scaling and flaccid bleb formation, pemphigoid in character, which suggested pemphigus vegetans.

DISCUSSION

DR. FRED WISE: I would not exclude the diagnosis of circumscribed scleroderma on account of the exudative inflammatory border.

DR. G. M. MACKEE: I agree with Dr. Wise's diagnosis of scleroderma. Scleroderma is occasionally associated with edema, ulceration, exudation and even with bullous lesions.

DR. JOHN E. LANE: I agree with Dr. Wise in the diagnosis of scleroderma.

DR. E. F. TRAUB: I agree with the diagnosis of scleroderma or morphea. Although the condition is not distinctly common, I have at least on one previous occasion, seen a patient with a characteristic patch of morphea with peripheral vesiculation.

DR. BINFORD THRONE: I agree with Dr. Wise.

DR. HOWARD FOX: When I first saw the lesion, I thought it either keloid or scleroderma. Dr. Highman's report changed the situation and makes the diagnosis of pemphigus a possibility in view of the history of a previous lesion which disappeared in a few months.

A CASE FOR DIAGNOSIS: (DERMATITIS ARTEFACTA?). Presented by DR. HOWARD FOX.

A. C., a school girl, aged 12, was said to have suffered in infancy from a similar lesion which lasted three months and left a scar on the shin. When the patient was presented, the eruption was of seven months' duration, the patient stating that it had followed a bite of an insect, which she scratched and which was later irritated by going in swimming and getting sand in the bite.

The lesion was a persistent ulcer, about 1 inch (2.5 cm.) in diameter, situated on the inner aspect of the right ankle. It had been painful and tender, and for several months, had apparently interfered with walking. It was round, with an indurated border and indolent base. The patient had been under observation at irregular intervals for five months. There were no stigmas of congenital syphilis. The Wassermann test was negative on two occasions. There was no enlargement of the femoral glands. Smear preparations from the lesion showed no tubercle bacilli, no Vincent's organisms and no Donovan bodies. Histologic examination showed simple inflammatory tissue, with no suggestion of tuberculosis.

A roentgenogram of the ankle had been made by Dr. LeWald, who reported that roentgenographic examinations of the right ankle, with the left for comparison, showed that there was no evidence of periosteitis or osteomyelitis involving the region affected. The patient had also been seen by Dr. C. M. Williams in consultation, who suggested a self-inflicted lesion. Against this diagnosis was the fact that the ulcer was always round and showed no angular prolongations that looked artificial. The girl, however, was precocious in her mental development, and showed numerous stigmas of hysteria. The knee-jerks and corneal reflexes were absent. Treatment had been almost entirely unsuccessful, including irradiation by roentgen rays (four fractional doses), quartz lamps, and application of mercurochrome-220 soluble and of a solution of cupria sulphate (on different occasions). The entire ulcer had been treated once by superficial electrodesiccation, under local anesthesia, without success.

DISCUSSION

DR. G. M. MACKEE: It might be dermatitis artefacta or it might be ecthyma. I have seen a number of cases like this one, which began with the bite of an insect and which were exceedingly stubborn.

DR. JOHN E. LANE: I can think of no other diagnosis than that of factitious dermatitis, but as Dr. MacKee has pointed out, the lesion much resembles that of ecthyma from which the crust has been removed.

DR. P. E. BECHET: I thought it was a rather superficial ulcer, traumatic in appearance, and strongly suggestive of an artefact.

DR. HOWARD FOX: An ulcer lasting seven months and resisting many kinds of treatment is not my idea of ecthyma. If I had seen this case in Brazil last summer, I would have thought leishmaniosis a probable diagnosis. As matters stand now, it is proper to try the effect of an occlusive dressing and watch the patient as carefully as possible.

PEMPHIGUS. Presented by DR. G. M. MACKEE.

Mrs. J. W., a Jewish housewife, aged 30, was from the New York Post-Graduate Skin Clinic. For five years she had suffered from recurrent attacks of a vesicular and bullous eruption accompanied with itching and stinging, later followed by pain, when the lesion became crusted. The attacks were sudden and subsided in a few weeks. At first they occurred every few months, then every month, usually at the menstrual period, and, finally the remissions lasted only a week or two. Formerly, there were no lesions during the remissions, but later she was never entirely free from them. The eruption was most marked on the trunk, especially on the chest and abdomen, with lesions scattered over the arms, forearms, thighs and back. There had never been any lesions of the mouth. There was no distinct grouping; there was no erythema until a lesion had been present several hours. The bullae ranged in size from that of a split pea to that of a fifty cent piece; they were tense and clear, later becoming cloudy, and then crusted. At times vesicles would appear around the edge of a crust. The patient's general health was good, and there had been very little loss of weight. She had received arsenotherapy by mouth, roentgen treatment, sulphur and many ointments.

A general physical examination showed no abnormalities except the eruption. Chemical examination of the blood, the Wassermann test, urinalysis, basal metab-

olism, hemoglobin and blood count were normal. The eosinophils were 1 per cent. One bulla the size of a split pea was excised. The pathologic histology was that of impetigo contagiosa. Blood was taken from a vein between menstrual periods and sent to Dr. Pels of Baltimore, who performed the lupinus albus test. The index was 55, which suggested pemphigus. Dermatitis medicamentosa had been excluded. Dr. Wise had seen the patient several years before presentation and had made a diagnosis of dermatitis herpetiformis.

The patient was having a remission when presented, but there were several new bullae on the breasts, and the remnants of many former bullae.

DISCUSSION

DR. E. F. TRAUB: Has erythema multiforme associated with some pelvic condition been ruled out?

DR. BINFORD THRONE: I am inclined to accept the diagnosis of pemphigus.

DR. J. F. FRASER: If it were pemphigus, the woman should be sicker, and by this time there should be some evidence of lesions of the mucous membrane. I am inclined to favor the diagnosis of recurrent erythema multiforme. The question of focal infection should be looked into carefully.

DR. FRED WISE: I should exclude pemphigus on account of the lack of constitutional symptoms, absence of loss of weight, and absence of lesions in the mouth and about the genitalia. I would favor the diagnosis of recurrent erythema multiforme.

DR. H. H. WHITEHOUSE: I do not regard the case as pemphigus, although I cannot say what it is. In that length of time, pemphigus would become more diffuse; there would be lesions of the mouth and loss of weight. Because of the itching and grouping it might be dermatitis herpetiformis.

DR. G. M. MACKEE: There are several diseases to be considered: recurrent erythema multiforme, which should be associated with more erythema and polymorphism; recurrent impetigo contagiosa of the bullous type, which should respond more readily to sulphur ointment or ointment of ammoniated mercury; an unusual example of dermatitis herpetiformis, which it may be because of the itching, lack of involvement of the mouth and slight grouping, and good general health; drug eruption, which has been ruled out, and, finally, pemphigus. I believe that there is chronic, comparatively benign pemphigus. In fact pemphigus may behave in many ways. The positive lupinus albus test must be taken seriously.

A CASE FOR DIAGNOSIS (LEUKOPLAKIA?). Presented by DR. FRED WISE.

Mrs. A. L., aged 50, had been attending the Post-Graduate Hospital Skin Clinic. For the previous four years she had been troubled with white patches in the right side of the mouth, which were somewhat sensitive to hot and spicy foods. The right side of the tongue and the mucous membrane of the right side of the mouth, extending from the tip to the root of the tongue, presented lacelike, white patches. The microscopic examination was negative for fungi. The patient did not use tobacco.

DISCUSSION

DR. H. H. WHITEHOUSE: The case reminds me of a patient whom I had some years ago; the woman was alarmed for fear she had cancer. She had pain running down one side of the neck as in the case presented. She was treated for syphilis, although the Wassermann test was negative. I did not make a diagnosis at the time, but while I was observing her, she said that she had something under the breast; there were two or three annular patches of lichen planus there, that came after the development in the mouth. That is the suggestive diagnosis which I would make in this case. I have had several of that sort. One patient was treated for a long time for syphilis by a most competent dermatologist. The patient whom I refer to had also similar lesions on the vulva. It proved to be lichen planus, and later general lichen planus developed.

DR. G. M. MACKEE: We have to consider lichen planus. We have all been fooled in the past by lichen planus in the mouth, thinking it was leukoplakia and later finding lichen planus on the body. Another disease to be considered is lupus erythematosus, which may occur in the mouth for months before lesions appear on the skin; and, finally, there is leukoplakia. Lichen planus of the mouth almost always shows reticulation, annular lesions and individual papules, all of which are absent in this case. For this reason, I am inclined to think that it is not lichen planus. Lupus erythematosus of the mouth has distinctly more inflammation than is observed in this case. I think, therefore, that it is a case of leukoplakia with some exfoliation that often occurs in this disease.

DR. E. R. MALONEY: My impression was that it was lichen planus. It seemed to me that there was a certain amount of reticulation in the posterior border that closely suggested it, and that this affected surface was not solid enough for leukoplakia.

DR. RAY HASKINS RULISON: It seemed to me that there was definite atrophy of the whole anterior part of the right side of the tongue. I asked Dr. Bechet to check my observation, and he noticed the same thing. This observation does not fit into the picture of either leukoplakia or lichen planus. It seems to me that any diagnosis which adequately explains the condition will involve some deep change in the nerve or vascular supply of the tongue.

DR. JOHN E. LANE: To me, the diagnosis lies between leukoplakia and lichen planus, and I favor the diagnosis of lichen planus. It is true that there is none of the typical reticulation of the surface, but in cases of long standing this is sometimes not so marked, as the spots become thinner. To my mind, the facts that it is an isolated spot, that the patient is a woman, that she does not smoke, that there is no irritation which can account for the location of the lesion, and that she does not have syphilis are rather against the diagnosis of leukoplakia, although that does not make it impossible.

DR. E. F. TRAUB: Because of the marked atrophy which Dr. Rulison mentioned, and the absence of characteristic lichen planus papules, annular lesions and reticulation, it seems to me that the more likely possibility in this case is leukoplakia. This condition does occur in females, without smoking and syphilis necessarily being the etiologic factors.

DR. HOWARD FOX: The discussion shows how difficult it may be to decide between leukoplakia and lichen planus. As Dr. Lane has said, the usual causes of leukoplakia are absent. On the other hand, the lesions of lichen planus are usually so superficial, that they cannot be felt by the finger. In this case there were thickened shreds of tissue.

DR. J. F. FRASER: I am inclined to agree with Dr. Whitehouse that the condition is lichen planus. The way to settle the question is to perform a biopsy with a small punch. The histologic picture of lichen planus of the mucous membranes is the same as that of lichen planus of the skin.

DR. H. H. WHITEHOUSE: Can a diagnosis of lichen planus be made from the histology of the lesion?

DR. J. F. FRASER: Yes; it is one of the few lesions of the skin in which we can make a histologic diagnosis.

DR. G. M. MACKEE: I doubt the etiologic importance of smoking and poor hygiene of the mouth as factors in leukoplakia. They are, of course, important therapeutically. The condition is a keratosis, and, with a few exceptions — such as roentgen keratoses, farmers' skin and senile keratoses — we have very little knowledge of the factors operating in the production of keratoses. Apparently sex, syphilis and age are etiologically important in leukoplakia, but we accept the other factors largely because they have been handed down to us by our predecessors. I would like to see carefully compiled modern statistics on the etiologic influence of smoking and faulty hygiene of the mouth in the condition. Women have always smoked, and millions of them have smoked excessively during

the past decade or two, and yet leukoplakia is comparatively uncommon in the female sex. The disease appears to be as common among nonsyphilitic persons of high social class as among those of the lower classes. Furthermore, the improved hygiene of the mouth of recent years does not appear to have caused a lowered incidence of leukoplakia.

ANGIOKERATOMA (MIBELLI). Presented by DR. E. F. TRAUB.

Miss S. F., aged 19, a stenographer, was born in Poland. Her mother died of pulmonary tuberculosis. Her father and one brother and sister were still living and well. No other member of the family had had a similar, or any other, type of vascular disturbance of the skin, so far as the patient knew. There was, however, an interesting history of nosebleed in the family, the father, patient and her sister suffering from this affliction.

The patient had suffered from frequent colds, but apparently had escaped practically all the usual children's diseases. Three years previously she had had an attack of pneumonia, and one year prior to presentation had had tonsillitis. For five and a half years she had had frequent attacks of nosebleed, the condition becoming so severe that for weeks at a time she had had almost daily bleeding. For a year and a half, however, she had been practically free from this trouble.

The condition for which she was presented began six years before presentation, shortly after her arrival in the United States. She stated that ten years before her hands and feet had been frostbitten and that for two successive winters she suffered from chilblains, which were treated by various types of bathing, as directed by her Polish physician. The eruption first made its appearance on the left index finger, gradually spreading to the other fingers of that hand, and two years later, extending to the other hand. Later, several of the toes on both feet had become involved. The lesions were limited exclusively to the dorsal and lateral surfaces of the fingers and toes; in size they varied from that of a pinpoint to a little larger than a pinhead. They were discrete, and in areas were so closely crowded together, that they became confluent. They varied from a dull red to a very dark purple, the central portion being almost black. Several of the larger and older lesions showed a distinct elevation and a slightly warty character. There was a marked variation in the size of the various lesions, apparently depending largely on their age.

A CASE FOR DIAGNOSIS (HEMANGIOSARCOMA?). Presented by DR. BINFORD THRONE.

E. K., a woman, aged 30, born in the United States, of American parents, gave a nonessential family history. The skin condition for which the patient was presented, began on the anterior surface of the neck at the age of 3, and spread continuously.

Examination on admission to the Skin and Cancer Hospital showed the forehead, upper eyelids and cheeks to be reddened, with occasional small angiomatous lesions. The neck, immediately below the lower jaw, showed little involvement; the lower part, however, showed an erythematous condition with marked formation of the angiomatous-like lesions which were seen especially at the upper border. On the trunk, the condition was similar to that of the lower part of the neck, except that there were areas of clear skin in the spinal region. The arms and forearms were similarly affected. The dorsa of the hands showed the erythematous condition. The fingers were flexed and deformed. The patient claimed that this condition had followed an attack of rheumatism six years previously. The thighs and legs showed a condition similar to that of the other parts described, but the color was a deeper shade of red. The condition did not involve the whole leg, but was most marked on the upper third. There was also an ulcer about 10 mm. in diameter on each side of the left ankle, and one on the inner side of the right ankle. On the legs, the lesions seemed to begin with involvement of the follicles.

The whole condition was scaly; in places the skin seemed thinned and atrophic. Pruritus was absent. At the advancing edges, the angiomatous lesions were arranged in an annular form. Whether this was caused by peripheral extension with a central clearing, or by confluence of the individual lesions, was not definitely determined.

Physical examination of the patient gave negative results, so far as the heart, lungs, etc., were concerned. The Wassermann and Kahn reactions were both negative; the urine was normal.

Chemical examination of the blood showed: chlorides, 479; sugar, 92; urea nitrogen, 10; uric acid, 1.69; calcium, 9.2. The basal metabolism was plus 1.34 per cent.

The blood count showed: red cells, 4,100,000; white cells, 6,850. The differential white count was: polymorphonuclears, 78 per cent; lymphocytes, 17 per cent; transitionals, 3 per cent; eosinophils, 2 per cent, and hemoglobin, 79 per cent.

A biopsy, showed an irregular epidermis with a dense cellular infiltration which involved the upper third of the corium. There were irregularities of the granular layer at the follicular openings, and in this region there was a thick nonparakeratotic scale which extended throughout the entire depth of the epidermis. The van Giesen stain showed an increased number of new blood vessels surrounded by more or less cellular exudate scattered throughout the corium. The Weigert stain showed almost complete absence of elastic fibers in the upper third of the corium; they were well developed below the infiltration. Comparison of these sections with those of Greenwood's in his hemangiosarcoma did not show the multinuclear cells or the pale staining epithelial cells that he described.

The conditions naturally considered in the clinical diagnosis were: poikiloderma of Jacobi, angioma serpiginosum, and hemangiosarcoma. The complete absence of pigmentation, both clinically and in section, seemed to be sufficient to exclude these conditions. The complete absence of the changes resembling those from roentgen rays, also was against a diagnosis of poikiloderma vasculare atrophicans. The annular arrangement of the lesions at the advancing borders, was in favor of a diagnosis of hemangiosarcoma.

DISCUSSION

DR. FRED WISE: I read only recently the article by Greenwood and White. Clinically, the eruption strongly resembles the condition described by these authors on hemangiosarcoma. It does not even remotely resemble angioma serpiginosum or poikiloderma; so that of these diagnoses I should say that the one mentioned by Dr. Throne is the most likely to be correct.

DR. H. H. WHITEHOUSE: I agree with Dr. Wise's remarks.

DR. G. M. MACKEE: I agree with Dr. Throne and Dr. Wise that in all probability the case is one of angiosarcomatosis cutis.

DR. BINFORD THRONE: I have nothing to add, except that I am very much gratified that Dr. Wise, Dr. Whitehouse and Dr. MacKee agree with my opinion in regard to the case. I was unable to make a positive diagnosis, but by a process of exclusion the only diagnosis left was that of a condition similar to that described by Greenwood and Lawless in 1892 as hemangiosarcoma.

SYNOVIAL CYST OF THE SKIN. Presented by DR. E. F. TRAUB.

Mrs. T. N., a housewife, aged 50, born in the United States, gave a history of two miscarriages, and one child living and well. The synovial lesion was located over the distal phalangeal joint of the little finger of the left hand, and had been present for six months. The unusual feature was the fact that the lesion was either a multilocular one or consisted of confluent individual synovial cysts. Incidentally, the patient presented a nodulo-ulcerative syphiloderm on the right knee and another over the left elbow. The Wassermann reaction was four plus.

DISCUSSION

DR. G. M. MACKEE: This is the first case of multilocular synovial cyst of the skin that I have seen. It may be a multilocular lesion, or it may be a group of three or four closely crowded cysts. In any event, it is a most unusual case of its kind.

RADIUM DERMATITIS. Presented by DR. FRED WISE.

Mrs. E. L., aged 56, had been attending the New York Post-Graduate Skin Clinic. For three and a half years she had had an inflamed patch of skin with ulceration on the lower part of the abdomen, over the pubic area. In December, 1922, the first radium application to the surface had been made, and a metal tube with radium was placed into the uterus. She had eight packs externally and two internal applications of radium. Before the completion of treatment, a sore developed on the abdomen, followed by a crust; and following this, an ulcer appeared which had persisted. Three and a half years before presentation, the inflamed area developed.

DISCUSSION

DR. G. M. MACKEE: I am interested because it is a result of radium. We have here radium sclerodermia, and very likely in time there will be cancer. The therapeutic suggestion I have to offer is excision of the lesion deep enough to reach healthy tissue, followed by either a graft or flap.

DR. JOHN E. LANE: I agree with Dr. MacKee that the only possible treatment for this case is surgical excision, which is a considerable problem as undoubtedly the subcutaneous tissues have been injured by the radium, so that the excision will have to be wide and deep and the healing extremely slow.

SYRINGOCYSTOMA. Presented by DR. G. M. MACKEE.

A. W., a Russian woman, aged 28, a clerical worker, entered the New York Post-Graduate Skin Clinic complaining of an eruption which had been present for nine years. There were no subjective symptoms. On the neck and about the chest were hundreds of discrete, oval, slightly elevated, smooth, shiny papules, the size of a pinhead, that were a little darker than the patient's normal skin. The pathologic histology was that of syringocystoma. A slide was exhibited at the meeting.

RADIODERMATITIS. Presented by DR. G. M. MACKEE.

S. T., a woman clerk, aged 26, from the New York Post-Graduate Skin Clinic, gave a history of having been given ten treatments with roentgen rays at the Tricho Institute four and a half years previously, for hypertrichosis. She was free from any sequelae of the roentgen rays until a year and a half prior to presentation. On the side of the face, the anterior part of the neck, and the chin were areas of telangiectasia; white atrophic areas and brown areas of similar size were also present, giving the typical appearance of radiodermatitis.

LUPUS ERYTHEMATOSUS. Presented by DR. E. F. TRAUB.

R. C., a school girl, aged 18, had a butterfly type of eruption on the face involving both cheeks and, to a less extent, the nose. The lesions were characteristic, but rather superficial. The patient had also a probable incipient pulmonary tuberculosis.

The patient had received eighteen injections of a gold compound, eight of sodium thiosulphate, and ten intravenous injections of bismuth. As a result of the injections of the gold compound, a toxic eruption appeared on the arms and trunk, but the lupus lesions on the face practically disappeared. With the disappearance of the toxic eruption, however, there was again a flare-up of the lupus on the face.

The case was presented with a request for therapeutic suggestions. Because of the incipient tuberculosis, was it wise to push the treatment for the lupus erythematosus?

DISCUSSION

DR. G. M. MACKEE: I do not think that there is any contraindication to treatment with a gold compound, provided the general condition is recognized and properly treated. Of course, the pulmonary tuberculosis is the main thing. The lupus may well be neglected for the time being.

DR. P. E. BECHET: I agree with Dr. MacKee, and do not think the treatment with a gold compound would have any deleterious effect on the tuberculosis.

DERMATITIS MEDICAMENTOSA (PHENOLPHTHALEIN). Presented by DR. G. M. MACKEE.

J. G., a Russian peddler, aged 44, stated that three weeks before presentation he had taken a laxative. Two hours later he felt warm, and pruritus developed. This was soon followed by a generalized eruption of large red macules. A week later, he took another dose of the same laxative. The macules, which had turned to a brown color, again became red and new ones appeared.

When admitted to the New York Post-Graduate Skin Clinic, there was a generalized eruption consisting of macules ranging in size from that of a split pea to that of a silver dollar. The color was a mixture of brown and red; some lesions were bluish red. As soon as the erythema subsided, the patient was given 5 grains (0.32 Gm.) of phenolphthalein, which was followed by another exacerbation. Such was the condition of the patient as presented.

ERYTHEMA AB IGNE. Presented by DR. FRED WISE.

S. B., aged 54, married, a native of Hungary, was attending the Post-Graduate Skin Clinic. On several cold days during the winter, he warmed his body by huddling against a radiator in his home. On the inner surface of the left leg, knee and thigh he presented a characteristic and well advanced picture of reticulated pigmentation in the form of irregular round and oval formations and large meshes, producing a striking network effect.

A CASE FOR DIAGNOSIS: (TUBERCULOSIS VERRUCOSA CUTIS). Presented by DR. E. F. TRAUB.

R. C., a laborer, aged 45, born in this country, presented an eruption on the dorsum of the right hand of four and a half months' duration. The onset was sudden, the patient stating that he awoke one morning with a distinct redness and swelling over the dorsum of the hand. The lesion increased slowly in size and was incised by a physician, who obtained very little pus. Small amounts of pus had been discharged since. The lesion showed a tendency to heal in the older portion but was progressive toward the wrist. Indolent lymphangitis had been present. The Wassermann test was repeatedly negative. Two biopsies had been made.

On microscopic examination the section showed a very irregular epidermis with marked increase of rete pegs. There was a dense infiltration scattered through the entire depth of the corium. The blood vessels were dilated and in some places almost thrombosed. The infiltration consisted of lymphocytes, plasma cells, and occasional giant cells of the Langhan's type. There was no definite tubercle formation, but an increased number of blood vessels. The diagnosis was chronic granuloma.

Cultures were negative except for *Streptococcus* and *Staphylococcus aureus*. With very little pressure it was possible to obtain large drops of pus, which came from the depths of the lesion and contained solid flakes resembling the granules found in actinomycosis. On examination, they proved to be only fibrin and polymorphonuclears.

DISCUSSION

DR. HOWARD FOX: The case is probably tuberculosis. The chances in favor of this disease as opposed to blastomycosis are very great, at least in New York City where blastomycosis is unusual.

DR. RAY HASKINS RULISON: Intradermal tests with human, bovine and avian tuberculin were made and proved negative for avian and bovine infection. Human tuberculin caused a slight reaction, hardly more than normal. Precipitation tests by Dr. Charles A. Doan of the Rockefeller Institute, with the tuberculophosphatids of human, avian and bovine tubercle bacilli, were all negative. These observations are very much against a diagnosis of tuberculosis.

DR. G. M. MACKEE: On clinical grounds alone, irrespective of investigation, I think it is blastomycosis. The lesion is too exudative and too rapid in evolution for tuberculosis. The histology, as presented, is inconclusive.

DR. E. F. TRAUB: We have had more than fifteen smears and cultures made on this patient at various times. These have been done at four different laboratories, and thus far, the only growth or organisms found, were staphylococci and streptococci. Guinea-pig inoculations have not been made. Two biopsies have been examined, and showed granuloma, there was no true tubercle formation and nothing to suggest syphilis.

A CASE FOR DIAGNOSIS (HERPES FACIALIS RECURRENS). Presented by DR. FRED WISE.

F. H., a married man, aged 39, born in this country, was attending the New York Post-Graduate Skin Clinic. Over the right temporal region was a group of crusts and blebs in an area 1 inch (2.5 cm.) in circumference, on an atrophic base about 2 inches (5 cm.) in diameter. The patient had had a similar lesion on the left cheek four years previously, without recurrence, and only slight atrophy remaining. Just before the eruption appeared, the patient had a burning and itchy sensation, followed in ten hours by the eruption of bullae.

CLEVELAND DERMATOLOGICAL SOCIETY

H. J. PARKHURST, M.D., *Reporter*

Regular Meeting, Feb. 27, 1930

C. L. CUMMER, M.D., *Presiding*

GRANULOMA INGUINALE. Presented by DR. COLE and DR. DRIVER.

I. F., a Negro, aged 28, presented two large, nonindurated, irregular, shallow ulcers on the shaft of the penis. The lesions were of five months' duration, and were healing under the administration of antimony, potassium tartrate (tartar emetic) and injections of foreign protein. The Wassermann reaction was strongly positive.

ANNULAR PAPULAR SECONDARY SYPHILIDS. Presented by DR. COLE and DR. DRIVER.

Two young Negresses with generalized small papular syphilids presented many small annular groups of the lesions, especially on the face.

BLASTOMYCOSIS WITH EPIDIDYMITIS. Presented by DR. COLE and DR. DRIVER.

J. S., a man, aged 38, had first been observed in May, 1926, complaining of coughing, hemoptysis, loss of weight and night sweats. Roentgen studies led to a diagnosis of abscess and localized empyema of the right lower lobe, and after

epididymectomy the pathologist's diagnosis was tuberculous epididymitis. In July, 1926, the patient had been readmitted with coin-sized granulomatous lesions on the face and ankle, which were diagnosed as tuberculous following a biopsy. In September, 1926, blastomyces were found in a smear of the yellow exudate from these lesions, and they disappeared in two months under treatment with potassium iodide and arsphenamine and solid carbon dioxide locally. The patient did well until November, 1929, when the right testicle and epididymis began to swell. The swelling had increased and persisted.

DISCUSSION

DR. RAUSCHKOLB: The former facial lesions were accompanied by epididymitis, and both receded under treatment with potassium iodide. A later recurrence cleared up when arsphenamine and potassium iodide were administered.

ALCOHOLIC PSEUDOPELLAGRA. Presented by DR. COLE and DR. DRIVER.

J. H., a Negro, aged 33, had been a consistent drinker of "raisin jack" for a long period of time. He presented a sharply outlined, gauntlet-shaped, dry dermatitis of the hands and wrists, and the feet, elbows, sacral region and neck were also involved. The condition was of seven weeks' duration. The mouth and throat had been so tender and painful that eating had been difficult, but this had subsided after hospitalization. There had been no diarrhea. The erythrocyte count was 3,970,000, the hemoglobin 65 per cent, and the leukocyte count 7,100. The Wassermann reaction was strongly positive.

DISCUSSION

DR. LITTMAN: Southerners think that alcoholic pseudopellagra is true pellagra, for in many of their pellagrous families the father has been alcoholic.

A CASE FOR DIAGNOSIS. Presented by DR. LITTMAN.

Miss D. H., aged 20, presented many acutely inflammatory small papules and superficial ulcers which had been appearing in the mouth and vagina for three months. They closely resembled aphthae, and disappeared spontaneously within from seven to ten days. New lesions were constantly appearing. All laboratory work had given negative results, including the examination of smears and cultures and blood investigations, and treatment had been of no avail.

DISCUSSION

DR. NETHERTON: Some of the patches presented a pseudomembrane, covering a moist surface; one on the lip was bullous. The possibility of thrush must be excluded, but I now favor a diagnosis of erythema multiforme. According to the history, eruptions due to drugs, especially those due to phenobarbital, may be excluded.

DR. LITTMAN: I have considered all of these possibilities, and also pemphigus.

DR. PARKHURST: The lesions on the lower lip and vulva resemble thrush.

EXTENSIVE CONDYLOMA ACUMINATA. Presented by DR. COLE and DR. DRIVER.

B. R., a Negro, aged 27, had had gonorrheal urethritis, followed by penile ulceration, which in turn had been followed by the development of extensive proliferating masses covering the distal end of the penis. The Wassermann reaction was strongly positive.

RECURRENT LICHEN PLANUS. Presented by DR. LITTMAN.

Mrs. G. E., aged 35, presented a pruritic eruption of small, flat, erythematous papules, with a predilection for the flexor aspects of the extremities. The duration of the eruption was a month. There had been a similar outbreak in 1927.

DISCUSSION

DR. DRIVER: This is a clearcut case of lichen planus. The lesions on the chest have a zosteriform distribution.

DR. LEVINE: The zoster-like arrangement of the lesions on the chest seems to be due to irritation of the skin by a corset.

DR. NORRIS: This type of case responds well to spinal irradiation.

DR. LITTMAN: Spinal irradiation has already been instituted in this case.

RADIODERMATITIS. Presented by DR. FISHER.

M. E., a man, aged 61, had had a "papilloma" on the sole two and one-half years previously, which was treated with x-rays and radium. There was a medium coin-sized, painful, deep ulcer. Therapeutic suggestions were requested.

DISCUSSION

DR. COLE: I suggest that the ulcer be excised and skin grafts used.

A CASE FOR DIAGNOSIS. Presented by DR. COLE and DR. DRIVER.

J. H., a man, aged 23, presented an eruption of deep ring-shaped papules on the palms and soles, of a month's duration. Some lesions had seemed to have vesicles at their centers, and in some there was a suggestion of iris formation. The eruption had appeared one month after the institution of arsphenamine treatment for secondary syphilitic infection.

DISCUSSION

DR. NORRIS: My first thought was of erythema multiforme, but the lesions are keratotic, deep and firm, as in recurrent syphilids.

DR. BARRETT: I consider the eruption a recurrent secondary syphilid of the cornèe type.

DR. NETHERTON: The grouping and infiltration of the lesions favor a diagnosis of recurrent syphilids.

DR. COLE: Several years ago we gave mercurial treatment to a Negro, and he developed typical erythema multiforme. Erythema multiforme-like eruptions may appear after the administration of the heavy metals. The present lesions look like those of the syphilid cornèe, but we must keep in mind the possibility of the aforementioned type of erythema multiforme.

DR. BARNEY: The eruption looks like a recurrent late secondary syphilid. I advise the application of mercurial inunctions directly to the lesions.

TRICHOPHYTOSIS OF SCALP AND AXILLAE; LICHENOID TRICHOPHYTID. Presented by DR. COLE and DR. DRIVER.

L. J., a Negro boy, aged 4 years, had been presented previously with a condition diagnosed as multiple abscesses of the axillary sweat glands. More recently, he had appeared with tinea capitis and many small patches of tiny follicular papules scattered over the body. The axillary lesions, persisting, were now considered to be probably trichophytic in origin, with secondary pyogenic infection.

DISCUSSION

DR. LA ROCCO: I agree with the diagnosis.

DR. DRIVER: We have seen the patient at intervals, for three or four years. At first he had lesions only in the axillae and groins, but fungi were never found, and so we concluded that it was a resistant infection of the sweat glands. We now consider it a tinea of the axillae and feel that the trichophytid is related to the pus-forming lesions there rather than to the tinea capitis.

A Case for Diagnosis. Presented by Dr. Littman.

Mr. A. C., aged 50, presented a generalized eruption of erythematous, squamous patches varying in size from that of a pea to that of a large palm; the eruption was of four weeks' duration. The face and extremities were especially involved, and there were hemorrhagic lesions, some papular, on the latter. There were pigmented macules where former lesions had undergone involution. The eruption was pruritic.

DISCUSSION

Dr. Gillespie: Although the pigmentation suggested lichen planus, I found no lichen planus papules. There were signs of an old varicose eczema about the ankles, from which the present dermatitis may have spread. There was some seborrhea of the scalp, but the eruption does not appear to be seborrheic.

Dr. Parkhurst: Recently I have seen a similar case arising from an over-treated varicose eczema. However, in the present case the color of the lesions is suggestive of an eruption due to phenolphthalein, and the patient has used a laxative containing that drug. The usual large coin-sized patches are absent, the large lesions being unusually large and the small ones unusually small.

Dr. Steinberg: The patches on the knees were suggestive of psoriasis.

Dr. Littman: I consider the condition an eruption due to phenolphthalein.

A Case for Diagnosis. Presented by Dr. Levine.

C. F. G., a salesman, aged 62, had had an infected "hang-nail" four years previously on the right ring finger. Part of the nail had then been removed, and later the entire nail, and ultraviolet treatment had been used, the condition having healed almost completely at times. During the last year potassium permanganate soaks, gentian violet and 10 per cent ammoniated mercuric ointment had been used, but six weeks before presentation the finger had been severely traumatized and the ulceration had reappeared and enlarged. It was irregular and the size of a small coin. The Wassermann reaction was negative, as were roentgen studies of the underlying bone.

DISCUSSION

Dr. Parkhurst: This case presents the history and appearance of acrodermatitis perstans of Hallopeau, but the possibility of epithelioma must be excluded.

Dr. Levine: I agree with the diagnosis of acrodermatitis perstans and will perform a biopsy.

Syphilitic Periostitis. Presented by Dr. Levine.

B. S., a child, aged 4 years, had developed a chancre of the right eyelid soon after birth, the mother having presented a maculopapular syphilid and a strongly positive Wassermann reaction at that time. Dark-field examination had given positive results. Since that time the child had been given intensive, but very irregular treatments of mercury, bismuth and the arsphenamines, for the syphilitic infection. Shortly before presentation periostitis of the left ulna had developed, verified by roentgen observations which also showed slight proliferation of the proximal portion of the radius. The Wassermann reaction and slide precipitation tests were strongly positive.

DISCUSSION

Dr. Steinberg: I agree with the diagnosis of acquired syphilitic periostitis.

Ichthyosis; Epidermolysis Bullosa. Presented by Dr. Parkhurst.

J. K., a boy, aged 6 years, presented a pronounced generalized dryness of the skin, and ruptured bullae, varying in size from that of a large coin to that of a palm, on the hands, wrists, forearm extensors, shoulders, buttocks, legs and feet. No epidermal cysts were found. There were a few intact, rather flaccid bullae.

The dryness had always been present, and the bulla formation had recurred for four winters, having been absent during the summers. It had first been considered a bullous impetigo, secondary to excoriation, but lesions seemed to appear following any local trauma. Mild antiseptic applications were being used.

DISCUSSION

DR. COLE: This case is evidently one of the congenital keratodermas in which bullous lesions may be found. It has some features of extensive ichthyosis. These bullae were not present at birth, but have appeared later. They are not in the usual sites of epidermolysis bullosa, and there are no milia, but nevertheless I consider it an unusual dystrophic epidermolysis bullosa, possibly complicating an ichthyosis.

DR. GILL: Dr. Corlett once had a similar case.

DR. NORRIS: In a similar case recently I prescribed quinine, and after some time the eruption faded. When the quinine was stopped, the eruption reappeared.

SYPHILITIC SUBCUTANEOUS FIBROID NODULES. Presented by DR. COLE and DR. DRIVER.

J. D. M., a man, aged 45, had first noticed the appearance of painless nodules of the palms and forearms three years previously. Their number had increased to twelve. More recently, similar nodules had appeared on the scrotum, and three weeks before presentation a deep, indurated, dime-sized ulcer had appeared on the scrotum. On the scrotum, there were three small, coin-sized, firm, flat tumors. There were four on the left palm and five on the extensor surface of the left forearm, varying in size from that of a dime to that of a walnut. On the right palm were three similar tumors, and on the ulnar border of the right forearm, about 3 inches below the elbow, there was a tumor as large as a pigeon's egg. All of the tumors were subcutaneous, not attached to the skin, firm, and neither tender nor painful. After six weeks' treatment with neoarsphenamine and potassium iodide, their former size had been reduced by about one-half. The Wassermann reaction was strongly positive.

DISCUSSION

DR. BARRETT: I have found only about thirteen or fourteen such cases reported in the literature, and practically all are in the English literature. All followed the course of the ulnar nerve; none involved the palms. Jeanselme has described a similar condition about the elbows.

Book Reviews

ULTRA-VIOLET RADIATIONS AND THEIR USES. By ROBERT AITKEN, M.D., F.R.C.P.E., Lecturer on Diseases of the Skin, Edinburgh University, and Physician in Charge, Dermatological Light Department, Royal Infirmary, Edinburgh, with a foreword by Sir Norman Walker. Price, 12 shillings, 6 pence. Pp. 208, with 15 illustrations. Edinburgh: Oliver & Boyd, 1930.

In this book Aitken gives an intelligent statement of the essential knowledge of ultraviolet light and the elementary principles of its application in therapeutics. The first chapter is a brief historical account of heliotherapy; the next four chapters are devoted to the physics, chemistry, biologic and various other effects of the agent; the sixth, seventh and eighth chapters are concerned with the technic. Then, in succeeding chapters, the author takes up the various therapeutic applications. He is a dermatologist of extensive experience, and his judgment of the therapeutic indications and contraindications for the use of ultraviolet light in diseases of the skin leaves nothing to be desired. The consideration of the therapeutic application of the agent in other departments of medicine is equally satisfactory. Altogether, it is the work of a trained physician who writes with a background of wide clinical experience and sound judgment, as well as long and intensive experience in the use of ultraviolet therapy. The book is a delight in a field where there is so much extravagance. It would be fortunate if it were studied by every one who uses the ultraviolet apparatus.

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